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THE ANIMAL KINGDOM

ARRANGED IN CONFORMITY WITH ITS ORGANIZATION,

BY THE BARON CUVIER,

MEMBER OF THE INSTITUTE OF FRANCE, &c. &c. &c.

WITH

ADDITIONAL DESCRIPTIONS

OF

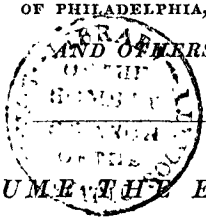
ALL THE SPECIES HITHERTO NAMED, AND OF MANY NOT BEFORE NOTICED,

BY

EDWARD GRIFFITH, F.L.S., A.S.,

CORRESPONDING MEMBER OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, &c.

AND OTHERS.



VOLUME THE EIGHTH.

LONDON:
PRINTED FOR WHITTAKER, TREACHER, AND CO.,
AVE-MARIA-LANE.

MDCCCXXIX.

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LONDON:
SHACKELL AND BAYLIS, JOHNSON'S-COURT, FLEET-STREET.

THE

CLASS AVES

ARRANGED BY THE

BARON CUVIER,

WITH

SPECIFIC DESCRIPTIONS

BY

EDWARD GRIFFITH, F.L.S., A.S., &c.
AND
EDWARD PIDGEON, Esq.

THE ADDITIONAL SPECIES INSERTED IN THE TEXT OF CUVIER
BY

JOHN EDWARD GRAY, Esq., F.G.S., &c.

39986

VOLUME THE THIRD.

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Errata in the Plates.

The Ruffed Bustard, for *Male*, read *Young Male.*
Faithful Jacana, for *Lath.* read *North.*
Cream-coloured Pratencole, for *lactad*, read *lactea.*
Black-naped Tern, for *Melanaucher*, read *Melanauchen.*
White-chined Gallinule, for *Gallimule*, read *Gallinule*

THE

ANIMAL KINGDOM.

Class AVES.

THE FOURTH ORDER OF BIRDS, GALLINÆ, OR GALLINACEOUS BIRDS,

So named from their affinity with the domestic cock, have, in general, like that bird, the upper mandible vaulted, the nostrils pierced in a large membranaceous space at the base of the bill covered by a cartilaginous scale. Their disposition and mien are dull; their wings are short; their bony sternum is diminished by two emarginations, so large and deep that they occupy almost the whole sides; the crest is truncated obliquely in front, so that the sharp point of the furca is joined to it only by a ligament. All these circumstances, by weakening the pectoral muscles, render their flight difficult. Their tail has, in general, fourteen, and sometimes eighteen feathers; their lower larynx is very simple: hence none of them sing well; their crop is very large, and their gizzard very powerful. If we except the Alectors, they lay and cover their eggs on the ground on some bits of straw or grass, negligently put together.

Every male has, in general, many females, and does not intermeddle either with the nest, or bringing up of the young, which are in general numerous; and, which for the most part, are able to run immediately on quitting the egg.

This order is composed principally of a very natural family, remarkable for having furnished us with the most part of our domestic poultry, and with some excellent game; whose anterior toes are united at the base by a short membrane, and indented along their edges; and which can be divided into genera by characters only of little importance, drawn from the appendices of the head. But that we may not over much multiply beings, we shall associate with them certain genera, whose feet have not this membrane, and one of which, the Pigeons, connect the Gallinaceous birds with the Passeres; the others, Opisthocomi, approximate in some degree to the Corythaix of the last family.

The Alectors.* (Merrem.)

Are large gallinaceous birds of America, a good deal analogous to our turkeys, with a large round tail, composed of broad and stiff feathers. Many of them have singular arrangements of the windpipe. They live in the woods, on buds and fruits, build in the trees, perch, and are very sociable, and inclined to domestication. Gmelin and Latham have divided them into Curassows and Guans, but from characters

* Alector is the Greek name for the cock.

not very determinate. We subdivide them as follows:

The Hoccos, properly so called, Buff. *Mitous* of Brazil, &c.

(CRAX. Lin.)

Have a strong bill, and its base surrounded with a skin, sometimes of a bright colour, in which the nostrils are pierced; on their head is a tuft of long, straight, and erect feathers, curled at the end.

They are about the size of the turkey, and, like that bird, mount the trees. They are brought up at will, in America; and some individuals come here from thence, so differently coloured, that we hesitate in characterizing their species.

The most common are:

The Crested Curassow. Lath. *Mitou-Poranga.* Marg. (*Crax Alector*, Lin. Buff. Ois. II. pl. 13. Vieill. Galer. 199.)

Black, with the lower belly white, and the cere yellow. Their trachea makes merely a slight turn before it enters into the chest.*

* See its anatomy. Tem. Gal. iij. t. 5. f. 1, 2, 3. Mem. Acad. Sci. Par. in t. Trans. Pitfield, Mem. t. When young, black; body, white banded; temples, naked: when older, belly varied with reddish; crest, body, wing, and tail, white banded; and the crest, straight. See Le Mitu female, Azara, Voy. 169.

Some of them have at the base of the bill a globular tubercle, more or less thick.

Globose Curassow. Crax Globicera. Lin. Enl. 86, and Edw. 295, 1.

Body, black; vent, white; crown, black; tail-tip, white.

Among both of these there are some which have the body striped with white or yellow. Albin II. 32, which appears to be the true *Hoazin* of Mexico, of Fernandez.*

Sometimes the whole under part is yellow. *Azara.* Voy. IV. p. 169. It appears also from other travellers that the females are fulvous-yellow.

Those of Peru:

Red Curassow. Crax Rubra. Lin. Pl. Enl. 125.

have the under part of a bright chesnut, and the head and neck varied with black and white.†

* Temminck regards them as the Hybrid breeds, produced by the intermixture of the species in a domesticated state.

† The *Crax Alector Fœmina* of Latham. See Albin. t. 40, and Lath. Syn. t. 63. Temminck describes the wild specimens as those with the neck black and white banded; the cere black; and the tail with nine black edged, yellow-white bands. The hybrid with *C. Alector*, as darker varied with reddish, and the lower part of the neck, chest, and middle tail-feathers, black. See Pl. Enl. 125. with the orbits feathered, in the other hybrid the orbits, are naked; the head, neck, and crest, are black; the upper part of the body and tail feathers, banded with black and yellow.

C. Faciolata. Spix. t. 62. a.

Black; fulvous banded; neck, black, scarcely banded; crest, whité banded; chest, belly, vent, and thighs, ferruginous; bill, yellow-brown; feet, whitish. Size of a common fowl. Peru.

C. Blumenbachii. Spix. 64.

Violet-black; wings, red and black banded; belly, vent, and thighs, red-brown; crest, white banded; tail, graduated, violet-black. Length of body, twenty-nine inches; of tail, one foot.

C. Globulosa. Spix. 65. t. 66.

Violet-black; crested; bill, yellow; lower jaw, equal; male with a globule above the nostrils, and two globular caruncles on the lower jaw; vent and orbits, white; female, without globule or caruncle, and vent, red. Length, two and a half feet; tail, one foot.

C. Rubrirostris. Spix. 67.

Violet-black; crestal steellike; bill, purple, base; belly and vent, white; tail, violet-black.*

The Pauxi.† Tem. Ourax. Cuv.

Have a shorter and thicker bill, and the mem-

* Add *Wattled Curassow.* Lath. *Crax Carunculata,* Temm. Gal. t. iij. 44. t. 4. f. 3.; the head, black; belly, chesnut; cere and crown membrane. at the gape, and orbits, naked, red; crest, black, curled. Brazils.

† Pauxi is the name by which Fernandez designates them. Ourax the Athenian name for the heathcock.

brane at its base, as well as the greater part of the head, covered with short and close feathers like velvet.

The commonest species, called

Cushew Curassow. Crax Pauxi. Lin. Enl. 78. Vieill. Galer. 200.

Carries at the base of the bill an oval tubercle, nearly as thick as the head, of a bright blue colour, and stony hardness. This bird is black, but about the vent and at the end of the tail, white. It lays on the ground. Its native country is not certainly known. The trachea descends on the outside, along the right side to behind the sternum, bends toward the left side, and returns in front to enter the chest by the furca. All its rings are compressed.*

There is another species, which has in stead of a tubercle, a mere salient crest on the bill, which is red. Its belly, and the end of the tail, are marron. This is the true *Mitu* of Margrave.

Razor-billed Curassow. Ourax Mitu. Tem. Col. 153. *Crax Galeata.* Lath. *Crax Tomentosa.* Spix. t. 63.

Black belly, chesnut; tail, white tipt. *Tem. Gal.* ij. 7. *t.* 4 *f.* 2.

* The *Cushew Curassow.* Edw. t. 295. and Gm. t. 86. f. 1. The trachea is figured by Temminck, Gal. ij. t. 4. f. 1.

Crax. Tuberosa. Spix. t. 67.

Shining violet-black, with a red abdomen, and white tips to the tail; the bill compressed, and without any appendages.

Cr. Uramutum. Spix. Braz. t. 62.

Ch. snut-brown; with a black head and tail, and red and black banded back, and wing-coverts, and a narrow crest of long recumbent feathers.

N. B. The *Chacamel*, Buff. *Crax Vociferans*, Gmel., founded on a vague indication of Fernandez, ch. 61, is not sufficiently authenticated. Sonnini thinks that it may be the *Falco Vulturinus*. The *Caracara* of Buff. and of Dutertre, is the genus *Agami, Psophia.*

The Guans† or Yacous, (Penelope.) Merrem.

Have a thinner bill than the hoccos; round the eyes, and under the throat, are naked; and the naked part under the throat is capable of being inflated.

Many varieties of colour are also known, among which it is difficult to establish specific limits; those especially which have a crest, and some of them of

† Guan and Yacou are names of the birds in Guiana and Brazil. Penelope, which was introduced by Merrem, implied among the Greeks a species of duck, which, as they said, saved from drowning the wife of Ulysses, in her infancy.

different shades of brown or bronzed. As the *Penelope Jacupema.* Merr. II. 11.

Sometimes they are spotted on the chest, as

The Guan or *Quan*, Lath. *Penel. Cristata*, Gm. Edw. 13.*

Shining, reddish-green; rump and belly, chesnut; neck and chest, white spotted; temple naked, violet; throat, red; female more obscurely crested.

The *P. Jacquacu*, Spix. t. 68, *Jacucacu*, t. 69, *Jacupeba*, t. 71, *Jacupemba*, t. 72. *Guttata*, t. 73, and *Arracuan*, t. 74, of Spix, are nearly allied to *P. Cristata*, if indeed they are not simple varieties of it. The *P. Marail*, Vieill. Gal. 198, answers principally to the *Jacupeba*.

Sometimes they are black with spots on the chest, and more or less white on the crest and wing-coverts.

Cumana Curassow, Lath. *Pen. Leucolophos*, Merr. II. 12, or *Pen. Cumanensis*, Gm. Jacq. Beytr. pl. 11, Bajon Cay. pl. 5, or *Pen. Jacutinga.* Spix, pl. 70.

* The *Meleagris Cristata* of Lin. See *Trachea*, &c. Temm. Gal. ii, t. 6. f. 1—3. Latham figured the Trachea of *Crax Pauxi* for this bird.

Crested, violet black; head, white; neck and chest, white dotted; wing-coverts, white spotted; quills, truncated at the tops. See Temm. Gal. iij. t. 7, f. 2.

There are some intermediate between the two extremes.

Piping Curassow, Lath. *Pen. Pipile*, Jacq. Beytr. pl. 11.*

The windpipe, at least in the first named of the above species, descends under the skin to far behind the posterior edge of the sternum, remounts again, and returns to bend again and remount towards the furca, by which it passes, as in common, to arrive at the lungs.†

One species is almost without a crest.

Marail Turkey, Lath. *Pen. Marail*, Enl. 338, Vieill. Galer. 198.

Greenish-black, with a yellow belly; appears to be very distinct. The trachea in both sexes makes a little handle at the top of the sternum before it enters the chest.‡

* Temm. considers this the same as the *Cumana Curassow.*

† See *Temm. Galin*, iij. t. 6. f. 1, 2, 3. The Trachea.

‡ Temminck describes this species as crested, dark shining copper-green neck, and chest white spotted. The orbits, throat, and membranes, reddish, and the female obscurely crested. He figures the Trachea, Gal. t. 7. f. 1., as does also Lath. Lin. Trans. iv. t. 9. f. 2. See also Bajon. Mem. Cayenne, f. t. 3, 4, and Em. t 83, f. 4.

Add—*Obscure Guan*, Lath. *Penelope Obscura*, Tem. Gal. iij. 68. Not

The PARRAQUAS, ORTALIDA. Merem.

Differ from the last principally in the absence of the nudity of the throat, and about the eyes.

Only one is known:

The *Motmot and Parraka Pheasant*, Lath. *Catraca*, Buff., *Phasianus Motmot*, Gm. and *Phas. Parraqua*, Lath. Enl. 146, (which is bad, inasmuch as it represents the tail as pointed,) Bajon. Cay. pl. 1.

Bronze-coloured above, whitish-grey underneath, and red on the head.

The voice of this bird is very strong, and articulates its name. The trachea of the male descends under the skin toward the abdomen, and returns again to enter the chest.

crested; crown, neck, tail, and quills, black; throat. back, and wing, blackish, white spotted; rump, belly, and vent, chesnut. Paragua, the *Yacuchu* of Azara, n. 335.

Supercilious Guan, Lath. H. *Penelope Superciliaris*, Tem. Gall. iij. 70. Not crested; crown and nape, black-brown; back, greenish-ash; feathers, grey edged; wing-coverts and secondaries, greenish and yellow edged; belly and rump, red. Brazils. *The Eyebrowed Guan.*, Lath. Hist. viii. 139, is the same, or a very nearly allied species.

See also the account of *Penelope Aburvi*, of Gondot, Keeper of the Museum of Bogota, Lesson Man. 215, found on the mountains of New Grenada. The trachea descends without, and folds into the chest. It has two cœca, like those of *Penelope Parakoua*.

With these different alectors are commonly associated

The HOAZIN, Buff. OPISTHOCOMUS, Hofmanseg,

An American bird, which has the same carriage, whose bill is thick and short, with the nostrils pierced in the horn of it, without a membrane. The head has a tuft of long narrow and slender feathers. This bird is distinguishable from all the rest of the order by the absence of any membrane between the base of the toes. It is

Phasianus Cristatus, L. Enl. 337, Vieill. Gal. 193.

Greenish-brown, varied with white above; the neck, before, and the end of the tail, fulvous; marron beneath. It is found in Guiana perching by the sides of inundated places, where it feeds on leaves and grain of a species of arum. Its flesh has a strong scent of castor, and is only used as a bait for certain fish. The name of Hoazin has been applied, without any proof, to this bird by Buffon, after an indication of Fernandez, Mex. p. 320, chap. 10, M. Vieillot, Gal. t. 193, under the name of *Sasa Onstata*, and badly represented, as if its beak was notched near the commissure. It forms a very distinct genus from the other gallinaceous birds, and will probably prove the type of a peculiar family when its anatomy is known.

The Peacocks, Pavo, Lin.

Named *Paons*, in French, from their cry, are characterized by a crest or tuft upon the head, and by the coverts of the tail being larger than the quills, and capable of erection, so as to form a circle like a wheel. Every person knows how brilliant are the lax and silky barbs of these feathers, and the eye-spot painted at the extremity of them.

The *Crested Peacock* (*Pavo Cristatus*), Lin. Enl. 433 and 434,

In which the head is adorned with a tuft of straight feathers, broad at the end. This superb bird, originally of the north of India, was brought into Europe by Alexander. The wild bird even surpasses the domesticated in brilliancy. The back and wings of the former are blue instead of golden green, and the tail is fuller.

The *Japan Peacock*, ill-named by Linnæus *Pavo Muticus*, for it is not without spurs. Vieill. Gal. 202, Shaw Nat. Mis. 641.

This is a distinct species, with a crest of long and narrow feathers; the neck is not blue, but golden green undulated. Its tail is nearly equal to that of the common species.

The *Iris Peacock*, Lath. (*Pavo Bicalcaratus* and *Thibetanus*, Gm.) Enl. 492 and 493, Vieill. Gal. pl. 203.*

Is much smaller, and has on the head merely a short close crest. The tarsi of the male are each armed with two spurs; the coverts of the tail, less elongated, have double spots, but those of the scapulars single; all of them in the form of a mirror.

M. Temminck has made a genus of this under the name of POLYPLECTRUM, which M. Vieillot has changed to DIPLECTRON.

Polypl. Albocellatum, Tem.

Is a species not far removed from the last. The spots are simple blue, in a white circle.

P. Chalcurum, Tem.

Has blue quills, but the coverts have only transverse black and yellow bars.†

The LOPHOPHORES. LOPHOPHORUS, Tem.

Have the head surmounted with a tuft similar to

* The *Pavo Spiciferus*, Viell. Gal. the *Pavo Javanicus*, Hors. does not perhaps differ from it. Head, figured. Tem Gal. t. 1. f. 1.

† The *Phasianus Pavoninus*, and *Ph. Fuscus*, of Klein, the *Polyplectrum Chenquis* of Temminck, sometimes found white. Gerin, ij. t. 221. Edw. t. 67 and 68. Em. t. 83. f. 2, 3.

that of the Peacock's. The tail is also like the peacock's, but the coverts are not elongated. They resemble the peacock in the brilliancy of the metallic colours of the plumage of the male. A circle round the eyes, and even the cheeks are naked as in the pheasant, and the tarsi have strong spurs.

One species is found in the mountains of Northern India.

Impeyan Pheasant, Lath., *Lophophorus Refulgens*, *T. Phasianus Impeyanus*, Lath. Synops. Sup. pl. 114, *Monaulus Impeyanus*, Vieill. Gal. 208.

As big as a hen turkey; black; the crest, feathers, and those of the back changing into different golden, cupreous, sapphire, and emerald hues. The quills of the tail red. The young and the female are brown, varied with grey and yellow.

Ælian appears to have known and described this bird. Hist. An. L. xvi. c. 2.

The *Coloured Pheasant*, Lath. *Lophophorus Cuvieri*, Tem. Col. pl. 1.

With a pendant crest, black body, with the edges of the feathers of the back white, discovered by M. Alfred Duvaucel. It is probably the *Phasianus Leucomelanos*, of Lath. Its female is brown, with the edges of the feathers of the chest whitish.

Also has been described:

Ency. Met. Suppl. t. 237, f. 1.

Lophophorus Wallichii. Hardwicke. Lin. Trans. xv. 166.

Orbit, large, naked red; crest of few, recurved feathers; head, slate-coloured; neck, whitish; upper part of the back and breast, whitish, black banded; lores, wings, sides, and rump, golden-brown, black lunuled; tail, compressed, graduated, yellow-brown, blackish-banded; spur, sharp; bill of Almorah, called *cheer*. Length, two and a half feet.

The Turkies.* (Meleagris, Lin.)

Have the head and the back of the neck furnished with a denuded skin, which is altogether mammiformed; under the throat is an appendage which hangs along the neck, and on the front is another, of a conical shape, which in the male bird is blown out and elongated in the moments of irritation, hanging then above the point of the bill. On the under part of the neck of the adult male, is a pencil of stiff hairs. The coverts of the tail are shorter, and stiffer than in the peacock; and erect themselves in the manner of the peacock to make a circle. The males have weak spurs.

Only one species was for a long time known.

* Meleagris is the Greek name of the Guinea fowl, and is, therefore, improperly applied to the turkey by Linnæus.

The *Common Turkey, (Meleagris Gallopavo.* Lin.) Enl. 97.

Brought from America, in the 16th century, and spread now throughout Europe, on account of the goodness of its flesh, its size, and the facility with which it multiples.

The *Wild Turkies of Virginia,* Vieill. Gal. 201.

Are of a greenish cupreous brown.*

But another has been lately described:

The *Honduras Turkey,* Lath. 4. *Mel. Ocellata.* Cuv. Mem. Mus. 17, *pl.* 1. *Col.* 111.

Nearly as fine as the peacock, by the brilliancy of its colours, and especially by the circles of sapphire colour, surrounded with gold and ruby, which decorate the tail. It was taken in Honduras Bay.

The PINTADOS, GUINEA, or PEA-FOWLS. NUMIDA,* Lin.

Have the head naked, fleshy caruncles at the bottom

* Consult Pr. Musang. Orn. Amer. t. and Audubon, Amer. Birds, t. and Vieil. Gal. t. The domestic varieties greatly vary in colour, and have been often figured. Tem. Gal. ij. t. 3. f. 5 to 9, figures Larynx of this bird. There are two varieties noticed, the *Crested,* Albin. ij. t. 33, and the *Hybrid,* Edw. 337.

* The Greeks named these birds *Meleagris,* under the idea that they were the production of the metamorphosis of the sisters of Meleager. The spots on their plumage being considered as the traces of tears. The Romans named them Fowls of Africa, Numidia, &c. The moderns have found them only in Guinea.

of the cheeks, a short tail, and the cranium, in general, surmounted with a callous crest. Their feet have no spurs; their tail is short and pendant; and the thick feathers of the rump give them an inflated appearance.

The common species,

The Guinea Pintado. Lath. *N. Meleagris.* L. Enl. 108.

Is originally from Africa. The plumage is slate coloured, covered all over with round white spots. It is a bird, whose clamorous and querulous disposition renders it very inconvenient to be kept in the poultry yard, although it is excellent eating. In a natural state they live in very large flocks; and frequent, in preference, marshy situations.*

Crested Pintado, Lath. *Num. Cristata,* Pal. Spic. IV. pl. 2. Vieill. Gal. pl. 209.

In this species the head is surmounted with a crest of feathers.

The body, black, blue spotted; chest and crest, black; throat, blood-red; neck, above, bluish. See Lath. Gm. IV. t. 62. &c. Ency. Meth. t. 85. f. 3.; and Mr. Yarrel, Lin. Trans. has figured its trachea.

* The Larynx figured by *Temm. Gal. ij. t.* 1. *f.* 4, 5.

The Mitred Pintado, Lath. *Num. Mitrata*, Pallas, Spic. t. 3. f. 1, head.

And in this the head is armed with a conical helmet.

Body, black, white spotted; with a longitudinal gular pleat. Madagascar and Guinea.

Num. Ptylorhyncha, Lich.

In this the helmet is very small; but at the base of the bill there is also a small tuft of short stems, almost without barbs.

The *Numida Ægyptica*. Lath. described from Germ. Orn. t. 232, appears to be a variety of the crested species.

The Great Genus of PHEASANTS, (PHASIANUS), Lin.

Has the cheeks partly denuded of feathers, and furnished with a red skin, and the plumes of the tail arranged in an imbricated manner.

At the head of these we place

The COCK (GALLUS).

Whose head is, in addition, furnished with a fleshy and vertical comb, and whose lower mandible has on each side a fleshy wattle; the quills of the tail, fourteen in number, are arranged upon two vertical

planes, side by side; the coverts in the male are elongated, and form an arch over the tail properly speaking.

The Cock and Common Poultry. (*Phasianus Gallus*, L.) Enl. 1 and 49.

Varies infinitely in colour; its size, moreover, is very different. There are some races, in which there is a tuft of erect feathers, instead of a comb; some have feathers on the tarsi, and even on the toes; others have the crest, the wattles, and the periosteum of all the skeleton, black; certain monstrous races have, for many generations, five, and even six toes.*

We are now acquainted with many species of the wild cock, as

The Wild Cock, Lath. *Gallus Sonneratii*, Tem. Col. 232 and 3.

Very remarkable for the plumes of the neck of

* Temminck regards the following domestic birds as arising from distinct species, as yet undiscovered in their wild state :—

The *Negro Cock*, Lath. *Gallus Morio* and *Mozambicus*, Brisson, with the combs, wattles, and periosteum, black, and the body variously coloured. From India.

The *Silk Cock*, Lath. *Gallus Lanatus*, Temm. Pl. Enl. t. 218, white, with the feathers resembling silk. From China and India. Skin and periosteum, black.

The *Crisped or Frizzled Cock*, *Gallus Crispus*, Brisson; t. 17. f. 1. Stordegl. Ucc. ij. t. 215; with the feathers reflexed and resolute, and finely variegated.

The two former are probably varieties of an unknown species; the latter appear to differ very little from the *Gallus Domesticus*.

the male, the stems of which are enlarged toward the base into three successive disks of horny matter. The comb of the male is indented. It is found in the Gauts mountains of Hindostan.

The cock is grey, varied with red and white; the chest, reddish; the neck and wing-coverts, fulvous; and the tail, shining-green. The hen is smaller, without any comb or wattles, the head feathered, and the body duller, varied with brown and red.

See Sonn. Voy. Ind. ij. t. 94, and 95. Ency. Meth. t. 86, f. 5. Temminck has figured one of its feathers. Gall. ij. t. 3. f. 1, 2.

M. Leschenaud has brought two others from Java. The one,

Javan Cock. Lath. *Gall. Bankiva.* Tem.

Which has an indented crest like the preceding, and has on the neck nothing but long falling feathers, of the finest golden red. This appears to me the most to resemble our domestic cock.*

* The male has a fulvous back and head; the wing-coverts, brown-black; and the belly and tail black. The hen, yellowish and ashy-brown. Temminck refers to this species the following varieties;

The *Domestic Cock*, Latham, and its varieties, Anat. Temm. Gal. ij. 2. f. 2 to 3. and t. 3. f. 3, 4. See it with compressed comb.

The *Crested Cock*, Lath. with tuft of feathers; see Pl. Enl. 49.

The *Bantam Cock*, always of a small size, and often feathered to the claws.

The *Dwarf Cock*, or *Gallus Pumilio*, Brisson, with very short feet, and about the size of a pigeon.

And the *Dorkin Cock*, or *Gallus Pentadactylus*, with five or six toes. See Frisch, t. 127, 128.

Superb Pheasant, Lath. *Ph. Varius.* Sh. Nat. Mis. 353; *Gal. Furcatus*, Tem. Col. 374.

Black; with the neck, copper-green, mixed with black. The crest is without indentations, and under the throat is a small dewlap, without lateral wattles.*

The PHEASANTS, properly so called, have a long graduated tail, and the quills arranged in two planes, and covering one another in an imbricated form.

* The tail is horizontal and forked, the neck-feathers short and rounded; the body is golden-green, above; and black beneath; the wing-coverts, orange and brown. The hen has no comb, nor crest, and the orbits naked and is probably the *Gallus Javanicus* of Dr. Horsfield, Lin. Trans. xiii. 185.

The *Jago Cock*, Marsh. Sumat. 98. *Gallus Giganteus*, Temm. Gal. in ij. t. 2. f. 1.; three times the size of the common cock; first described by Marsden, in his Hist. of Sumatra, and to this species Temminck refers. The *Paduan Cock*, Lath. Hist. *Gallus Patuornus*, Brisson, Orn. I. 170, Old. av. p. 310, 311. Stor. degli Nev. ij. t. 209, 210, as a domestic variety.

The *Malabar Cock* may also be a variety of it.

The *Wallichean Fowl, Gallus Ecaudatus*, Temm. Gal. ij. 262, 662; with an entire comb, and two wattles on the lower jaw; rump, without any tail, but covered by large coverts; body, orange-brown. Ceylon.

The female not yet described. When domesticated, variously coloured.

The *Rumpless or Persian Cock* of Lath. *Gallus Persicus*, Brisson, Frisch. t. 131, 132. Will. t. 26.

The *Butrol Pheasant. Gallus Anstrutheri.* Gray; comb, crenated; wattles, red; olive-green, paler, beneath; crown, white; sides of the head and throat, black; back and rump, darker, finely white banded; wings, rufous, with an oblique white band; tail more than half the length of the bird; two middle-feathers, tapering, pale-green, with broad bluish bars; the two next feathers, slender, dilated, blackish, and curled round at the tip; spurs, large, nearly straight. Length, six or seven feet. Hills of Butool, called *Gilwut*. In General Hardwicke's collection.

The most common is

Ph. Colchicus, L. Enl. 121 and 2.

This was said to have been brought from the banks of the Phasis by the Argonauts. It subsists now in all the temperate parts of Europe; where, nevertheless, it requires a great deal of care.

The male has the head and neck deep green, with two small tufts on the occiput, and the rest of the plumage golden yellow, mixed with green. The female is brownish, speckled and varied with deeper brown.*

China has furnished us, in modern times, with three other races or species, which, with the peacocks, form the ornaments of our aviaries. These are

The *Ring Pheasant, Ph. Torquatus*, which differs from the common species only in having a brilliant white spot on each side the neck.

* When domesticated, they sometimes become white, as *Stor. Degli Ucc. t. 259*; or, more or less varied with white, *Brisson, t. 25, f. 3*, Hayes, Birds, t. 21. They are said to breed with the other gallinaceous birds, and produce the *Turkey Pheasant*, Lath. *Ph. Gallopavonis*, Gmel. see Edw. Birds, t. 337, with the Turkey or the common fowl, from the *Coquard* or *Hybridal Pheasant*, Lath. Buffon, Birds, ij. t. 12, Cop. t. Ency. Meth. Hayes, Birds, t. 21. With the Painted Pheasant, as described by Temminck, p. 319.

The *Silver Pheasants*, (*Ph. Nycthemerus*, L.) Enl. 123, 124, Edw. t. 66.

White, with very fine black lines on each feather, and all the under parts black.

The *Golden Pheasant*, *Ph. Pictus*, L. Enl. 217.

So remarkable for its beautiful plumage. Beneath, it is of a fiery red; a beautiful golden-coloured crest hangs from the head; the neck is furnished with a small collar, orange-coloured, speckled with black; the top of the back is green; the lower part of the back and the rump yellow; the wings red, with a fine white spot; the tail very long, brown, spotted with grey, &c. It appears to me, that the description of the phœnix, given by Pliny (lib. x. ch. 2,) was made from this beautiful bird.

The females of all the pheasants have the tail shorter than the male, and the plumage varied with different greys or browns.

Add—

Ph. Versicolor, *Ph. Diardi*, Tem., discovered by MM. Diard and Duvaucel, Vieill. Gal. pl. 205.

Head, neck, and breast, copper-green; abdomen, blackish-brown; quills, pale-brown, white spotted; tail, pale-brown, ash-coloured spots; head with violet,

tint, and wing, and upper tail-coverts, ash, varied with golden-green.

One of the most singular species of birds is

The *Argus Pheasant, Ph. Argus,* L. Vieill. Gal. 203.*

The great Pheasant of Southern Asia, with the head and neck almost naked, the tarsi without spurs. The male has the tail very long, and especially the secondary quills of the wings, which are excessively elongated and enlarged, covered their whole length with spots in the form of eyes, which, when they are displayed, give the bird a very extraordinary appearance. It inhabits the mountains of the island of Sumatra, and some other countries in the south-east of Asia.

This forms the genus Argus of Temminck.

It appears that there exists in the interior of China a bird whose tail-feathers are still longer, and extend to four feet, whitish, changing into red

* The *Argus Pavoninus,* Vieil. See also Phil. Trans. lv. t. 3, Ency. Meth. t. 87, f. 2, and Mus. Lever. t. 10. According to Dr. Hamilton and Dr. Latham, there is a second species of this genus in Malay. See the *Malay Peacock,* Lath. Hist. viii. l. 21, t. 120, which is said to spread its tail like a peacock. The males are olive-yellowish, with reddish brown spots; and beneath, red-brown, lined with black; tail, black-brown, white dotted. The female is black-brown, yellow and brown spotted; secondaries without eye-spots. Less than half the size of the male.

towards the edges, with numerous transverse black or marron lines. It is thought that this bird is represented on many Chinese papers. M. Temminck names it *Phasianus Superbus.* Gal. II. 336.*

The following species are not in the text of Cuvier, but are described by other writers:

Phasianus Amherstiæ, Leadbeater, Lin. Trans. xvi. t. 15, *Ph. Superbus,* Temm.?

Allied to *Ph. Pictus,* but larger; top of the head, green; crest, crimson; feather of the back of the neck, very long, forming a green-banded white tippet; upper part of the body metallic-green, black-zoned; primaries, dusky; breast and belly, white; rump, green and yellow; tail, wedge-shaped; tail-feathers, white, with dark-green circular cross-bars; the largest about three feet long. Cochin China. Collection of Lady Amherst.

Reeves' Pheasant, Phasianus Reevesii. Gray.

Back, yellow-brown, blackish, scaled; crown, cheek-spots, and upper part of neck, white; spot over eye,

* Temminck describes the body as red, varied with green and blue; crest, blue; upper part of the neck covered with long feathers; humerus, greenish, spotted with white. The figure in Shaw's Nat. Mis. t. 353, to which Temminck refers, represents the *Javanese Cock. Gallus Furcatus.* It is probable that this bird is the same as *Ph. Amherstiæ* of the Lin. Trans.

Temminck, in his analysis, names *Phasianus Veneratus,* but he does not describe it.

naked, red; rest of head, lower part of neck, and thighs, black; wing-covert feathers of the lower part of body white, with two diverging black streaks, and reddish edges; tail, very long graduated; feathers, whitish in the middle, brown on the edge, and with black lunule cross bands; quills, black-brown, reddish banded. Length of body, twenty-nine inches; of tail, twenty-eight inches. China. Mr. Reeves.

The tail-feather, figured by Dr. Latham as the *Bar Tailed Pheasant*, t. 124, may belong to this bird; but his description of the bird evidently belongs to another species, probably *P. Amherstiæ*.

Pakraas Pheasant, *Phasianus Pucrasse*, Gray.

Ashy-grey; feathers, with a brownish streak down the shaft, and a black-brown one on each side of it; head, black-green, with a crest of long black-green feathers; sides of the neck, white; chest and vent varied with chesnut; tail, short, wedge-shaped, above, chesnut; beneath, dark brown, white tipt; bill, black; orbits, small, red; quills, brown-edged. Length, nineteen inches; crest, six inches. The brown on the crest perhaps a stain. Almorah Hills. General Hardwick.

The hen? not crested, and spurless.

Sylhet Pheasant, Lath. H. *Phasianus Lathami*, Gray.

Glossy violet-black; crest of several long loose feathers; loins and rump, with white lunule spots; tail, longish, compressed; outer feathers, white fringed at the top; quills, dusty-brown; orbits, very large, crimson, carunculated; spurs, long. Length, three feet. India. Sylhet. Sir J. Anstruther.

The following have naked orbits, and short tails :

Crawfurd's Pheasant. Phasianus Crawfurdii. Gray

Crown, with an erectile crest of subulate feathers; orbits, large, naked, red-pale-brown; feathers of the neck, with a long white central stripe, and dark shaft; wing-coverts, white; tail, pale-brown, with narrow, rather wavy, black edged bands; spurs, short, low down. Ava. Mr. Crawfurd. Length, fourteen inches.

Chittygong Pheasant. Lath. Hist. *Phasianus Muthura.* Gray.

Back and rump, fine glossy-green; loins and wings, chocolate-brown; throat, breast, and belly, white; vent, dusky-brown; tail, even, rather compressed; orbits, crimson, carunculated; head and neck, deep blue-black, slightly crested; spurs, short. India, called *Muthurau.* Size of a turkey.

Lineated Pheasant. Lath. Hist. *Phasianus Hamiltonii.* Gray.

Fine blue; chest, lineated; feathers of the loins and rump, edged with white at the tip; orbits, naked, red; secondaries and tail, greenish-black, slightly dotted; quills, dark-brown; crest, long bristly, retractile.

Female, pale-chesnut, minutely vermiculated, and dotted with dark-brown olive; pale, beneath, and not so distinctly varied; all the feathers, pale lunated tips and shafts; tail, middle, pale-brown, vermiculated with black and pale narrow lines; sides, metallic olive-green. Mus. General Hardwicke.

Rufous-tailed Pheasant. Lath. Hist. *Phasianus Erythropthalmus.* Raffles. *Mira Mata.* Malays.

Size of a fowl; black, with a blue and green gloss; back and wings, finely waved with grey; quills, brown; tail, bright-rufous; tail-coverts, purplish; orbits, red; spurs, strong; female and young, entirely steel-black.

The male here described agrees with a bird brought by Capt. Hay, as the hen of the Fire-back Pheasant.

Sumatra Pheasant. Lath. Hist. *Phasianus. Rufus.* Raffles.

Above, deep ferruginous, finely mottled with black; feather of breast, ferruginous, with a black band and white edges; abdomen, white and dusky; chin, nearly white; crest, adpressed; orbits, blue; spur, very small; female like the male.

Brown Penang Pheasant. Hard. Mss. *Phasianus Castaneus.*

Bright chesnut-brown; back, wings-coverts, and secondaries, minutely black-speckled; chest, brown and black varied, streaked with white; abdomen, black, lunulated with white; middle tail-feathers, slightly black banded; spur, very short; head-feathers, deficient; length, about eighteen inches. Penang. Mus. Gen. Hardwicke.

The following have the orbits covered with feathers and short tails; they are, perhaps, more allied to the partridge than the pheasant:

Black headed Pheasant. Hardw. Mss. *Phasianus Melanocephalus.* Gray.

Varied black and white, small undulated band with white spots, surrounded by a large black ring; neck and small wing-coverts, orange-red; chest, orange-red, with white eyed black spots; belly with black spot, including a smaller white one; head and upper part of neck, black; crest, erectile; orbits, feathered, like *Ph. Satyra*, but not having any horn nor wattle. Female, pale-brown; back, varied with black lunate spots, and small black edged, white spots; wings, with angular black bands; crown, crested, black and brown banded; neck, bright red; lower part, lunulated pale-brown, with black curved lines; beneath, paler, with indistinct blackish lunated bands: tail, undulated black and brown, punctately banded; spurless. Almorah in India. Gen. Hardwicke.

Brown Nepaul Pheasant. Hardw. *Phasianus Nepaulensis.* Gray.

Female, pale-brown; each feather with several curved blackish punctated lines, near the end; beneath, paler; lower part of the neck, wing, and body, with triangular white spots, edged with black on the centre of each feather; loins and rump, with a black spot on the centre of each feather; thighs, pale, blackish banded; quills and tail, pale chesnut, with cross bands of black dots. Like female of *Lophophorus Impeyanus*, but orbits, feathers, bill, and plumage different. Length, twenty inches. Male, above, darker; the quill and tail-feathers, blackish-brown, with five or six irregular pale-yellowish bands; and a short blunt spur.

The Houppiferes. Tem.

Have, with the naked cheeks, common to the whole genus, the vertical tail, and arched coverts, proper to the cock, certain feathers on the head, which can be erected, and form a crest like that of the peacock. The lower salient edge of the naked skin of the cheeks supplies the place of wattles. There are strong spurs to the tarsi.

Ph. Ignitus, Sh. Nat. Mis. 321. Vieill. Gal. 207.

We know as yet but this one species, which belongs to the islands of Sunda; as large as a cock; brilliant black, with a golden red rump; the two upper coverts of the tail, yellowish or whitish; the sides, spotted. The female is brown, finely striped with blackish above, with dashes of white beneath; she also has a crest.

Temminck describes the young as shining steel-black, variegated with small white lines, and the tail red.

The *Gallus Macartnyii*. Tem. Gal. ij. 663, and t. 3, f. 10, a feather of the crest. See Macartney. Emb. China, t. 13, cop. Nat. Misc. t. 321. It sometimes varies with white feathers in the tail.

The Tragopan. Tragopan, Cuv.

The male of this genus has the head more strangely ornamented than any other bird. Almost

naked, it has, nevertheless, behind each eye, a small thin horn; under the throat is a wattle, which is capable of extension. The tarsi have short spurs in both sexes.

The *Horned Turkey.* Lath. *Penelope Satyra,* Gm. *Meleagris Satyrus.* Lath. Edw. 116. Vieill. Gal. 206.

This species only is known, which is originally of the north of India; of the size of the cock; shining red, dotted with small white spots. The female and young are different shades of brown.

It is very probable that the *Tragopan,* of which Pliny speaks, lib. x. ch. 49, refers to this bird.

The *Phasianus Satyrus* of Temm.

We should separate from the pheasants

The CRYPTONIX.* Tem.

Which have only the space round the eyes naked, the tail, moderate and plane; the tarsi, without spurs; but their most peculiar character consists in the absence of a nail to the thumb.

Rouloul de Malacca. Son. 2nd Voy. pl. 100. *Crypt Coronatus.* Tem. Col. 350, 351. *Columba*

* M. Vieillot has changed this name into LIPONIX.

Cristata. Gm. and Lath. *Phasianus Cristatus.* Sparm. Mus. Carl. III. 64.

This is the only species which is well known. The male has a long crest of slender red feathers, and some long straight pieces, without barbs, over each eye.

The bird is green, and is a little bigger than a quail.

The female, which has only the vestige of a crest, is the *Tetrao Viridis.* Lath. Syn. 11.

See Pl. Col. 351. Ency. Meth. t. 95, f. 4.; the body, green; and the wing, chesnut; and the forehead with five or six long bristles.

They have at Malacca a species of black *Cryptonyx*, without any crest, and without any wart round the eye; brought by M. Dussumier.

The *Cryptonyx Niger,* Vig. The *Columba Cristata,* Var. B. Gmel. Lath. Gm. ij. t. 58,; is very nearly allied; but the figure has a large claw on the thumb; this is probably an error, as in the Gal. of M. Vieillot, ij. t. 210.

Some have the plumage of the partridges, and a small tubercle in the place of the claw on the hinder toe.

Tetrao Ocellatus, Raffles.

Head, red; body, below, red, black banded; above, black; nape, with slender white bands; back, marked with red; tail, brownish; wings, brownish-black eyed. Sumatra.

Cryptonyx Niger, Vig.

Black; quills, brownish; orbits, naked. Length, ten inches.

Cryptonyx Ferrugineus, Vig.

Dark ferrugineous, beneath, paler; back and wing, with narrow wavy, brown bands; scapular and secondaries, pale-ferrugineous in the middle, with a broad black band. Length, ten inches. Ava. Mr. Crawfurd, Mus. Hardwicke.

The *Perdix Cambienensis*, Lath. which Temminck first called *Cryptonyx Rufus*, he is now induced to consider as a true partridge. See Pl. Col. t. 447. See also *Malacca Partridge*, Lath. Hist. viii. 334.*

Tetrao, L.

Is also a numerous genus, whose characters consist

* *Phasianus Cristatus* forms the genus *Ophisthocomus*, of Cuvier. *Pha. Africanus*, is a *Musophaga*, Temm. and Vieil. and a *Corythaix* of Cuv.

Phas. Motmot, and *Ph. Parragua*, and perhaps *Ph. Mexicanus*, are Penelope.

Ph. Impeyanus, and *Ph. Lencomelanos*, are *Lophophori*.

Ph. Mexicanus, and *Tetrao Nova Hispaniæ*, Gmel. both established from Fernandez's description of the *Hoitlallotl*, appear to be very doubtful species. The *Courier Guan* of Lath. Hist.

Lesson has added the genus Talegalla, named, from having the form of the Taleres, or Sultana fowls; with the bill very strong and thick, and with the upper jaw compressed and extending up the forehead. The cheek quite naked; wings, rounded; tail, long, rounded; tarsi, strong, and moderately long, and covered with large scales.

Only one species known, found in New Guinea.

Talegalla Cuvieri, Lesson. Voy. Coq. t. 38. Black; size of a common fowl.

in a naked band, generally red, instead of eye-brows.

They may be divided into the following sub-genera:

The GROUS, TETRAO, Lath.

Whose legs are covered with feathers, and are without spurs.

Some of them, which more particularly retain this name, have the tail round and forked, and the toes naked.

We have two great species of them, the *Wood Grous*, Lath. *Tetrao Urogallus*, L. Enl. 73 and 74.

The largest bird of this order, bigger than the Turkey, slate coloured, finely striped across with black. The female fulvous, with transverse brown or blackish lines. It inhabits the great woods in high mountains. It builds in heath or new coppices, and feeds on birds and berries. Its flesh is excellent. The windpipe makes two bends, before it descends into the lungs.*

The *Black Grous*, Lath. *Tetrao Tetrix*, L. Enl.

* The trachea and beak are figured by Temm. Gal. iij, t. 9, f. 1 and 2, The Caper Caily of the Scotch. See also Gm. t. 90, f. 3. Naturforscher, iv. t. 18, f. 2, 5, Naum. t. 17, f 26, Alb. t. 29, 30, and Penn. Br. Zool. Inhabits Europe and Northern Asia, and commonly imported from Norway during the winter.

172, 3, Frisch. 109, Naum. 1st Ed. 18, f. 37 and 8.

The male is more or less black, with white on the wing-coverts and under the tail, the two forks of which are directed outward. The female is fulvous, striped across with black and whitish. Their size is about that of the domestic fowl. This is also found in woody mountains.

Hybrid Grous. Lath. *Tetrao Intermedius.* Langsdorf. Mem. Petersb. III. pl. 14, Sparm. Mus. Carl. pl. 15.

This, as an intermediate species, appears to exist in the north of Europe. It is larger than the preceding, with the tail less forked; the breast is spotted with white. It inhabits the marshy districts of Courland, Ingria, &c.

This appears to be the *Tetras à Plumage variable*, the *Tetras à Queue pleine*, of Buff.*

We have, moreover, in the woods of all the temperate parts of Europe,

* The *Tetrao Hybridus* of Lin. Faun. Sued. and *T. Medius*, Temm. See Gallin. t. 9, f. 3, of the natural size; found in Europe and Northern Asia; said lately to be found in England. See Fox, Cat. Newcastle Museum.

The *Hazel Grous*, Lath. *Tetrao Bonasia*, L. Enl. 474, 5. Frish. 112. Naum, 20, f. 39. Bonasia, or Bonasa, the name of the hazel grous in Albert the Great, and authors of the middle ages.

Not much bigger than the partridge, pleasingly varied with brown, white-grey, and red; a large black band near the end of the tail; the throat of the male, black; the head slightly crested.

The *Attagas*, of Buff. *Attagen*, of Aldrov. Ornith. II. p. 75, *Gelinotte Huppé*, Briss., does not appear to me, after considerable research, made even in Italy, to be any other than a young, or female. It is the same bird as the individual figured by Frisch, pl. 112.

The *Tetrao Canus* of Gm. (Sparm. Mus. Carl. p. 16,) is a mere albine variety of the Tetrao Bonasia.

Neither do I credit the authenticity of the *Tet. Nemesianus*, nor of the *Tet. Betulinus* of Scopoli. They are only females or young of the *Tet. Tetrix*, or disfigured T. Bonasia.

America produces some species allied to the Heath Cocks, or Grous of Europe, as

The *Spotted Grous*, Lath. *Tetrao Canadensis*, *T. Canace*, Lin. Enl. 131, 132. Edw. 118 and 71.

Brown, more or less black; the end of the tail, red.

The male is blackish-brown, obscurely varied with ashy-colour and brown; the lower part of the neck and chest, black; beneath scattered with white lunate spots, and two white lunate spots before the eyes; the hens are orange-brown, banded with ash; tail, brown, cloudedly banded with black, and yellow tipt. See Pr.,Musig. Amer. Orn. iij, t. 22 ♂, t. 23, f. 1, ♀.

There are some, the males of which erect the feathers on each side of the neck like a little tippet, or two little wings. Their manners are in some degree like those of the turkey. Such are

Ruffed Grous, Lath. *Tetrao Umbellus* and *Togatus*, Gm. Enl. 104, Edw. 248, Wilson, pl. 49, called *Pheasants*, in Pennsylvania, and *Partridges*, in New England.

Varied, with red, grey, and black; a large black patch at the bottom of each side the neck; a black band across the end of the tail, which is edged with white; the bottom of the tarsi, naked. Inhabits mountainous forests. The voice of the male in the breeding season is like the noise of a drum.

The *Pinnated Grous*, Lath. *Tetrao Cupido*, Gm. Catesby, Sup. I. Wilson, pl. 27. Vieill. Gal. 219.

Varied with yellow and brown; the tail brown; the tarsi feathered as far as the toes. The feathers

of the bottom of the neck of the male erect themselves like two little pointed wings. Inhabits the plains. The male has under the little tippets of the neck a naked skin, which is inflated like a bladder in the breeding season. His voice is like that of a trumpet. It is most excellent game, for the preservation of which laws have been made in certain states.

Dusky Grous, Tetrao Obscurus, Say. Pr. Mus. Am. Orn. iij, t. 18. ♀

Tail slightly rounded of twenty broad rounded blackish feathers; primaries, spotless; male, black; female and young, dusky, somewhat mottled. Rocky Mountains. Size, and allied to, *T. Tetrix*.

We insert in the text of Cuvier the following:

Cock of the Plains. Lewis and Clark. 473. *Tetrao Orophasianus.* Bonap. t. 21. f. 1. ♀

Brownish-grey, waved, with black and ferrugineous; throat and belly, black; chest, white; beneath, black band; feathers on the sides of the neck, lengthened brown; tail, cuneate of acute rigid feathers. Female, brownish-grey, black and white waved; belly, black; cheek, white, black banded. North America.

* *Tetrao Urophasianellus.* Douglas. Lin. Tran.

Brownish-grey, waved with white, black, and ferru-

gineous; nape and wings, white spotted; belly, white; sides, brown banded; four middle tail-feathers, long. Female, smaller, rather paler; nape, black banded.

Sabine's Grous. Tetrao Sabini. Douglas. Lin. Trans. XVI.

Rufous, black marked; back, with cordate spots; nape and wings, with ferrugineous and yellow lines; belly, white, brown banded; tail, banded with a broad subapical black band. North America.

Franklin's Grous. Tetrao Franklinii. Douglas. L. T.

Deep grey lead-colour, black banded; throat, chest, and nape, black; upper and lower coverts, black, white tipped. Female, paler; chest and nape, lead-grey. North America.

Richardson's Grous. Tetrao Richardsonii. Sabine. Douglas. Lin. Trans. xvi. 141.

Pale lead-grey, brown waved; throat-feathers, white in the middle; belly, darker, white spotted; side spot under the nape, white; tail-feathers, black, whitish tipped. Female, small; brownish-grey; back, brown banded; beneath, more spotted; two middle tail-feathers, brown banded.

The name PTARMIGANS, LAGOPEDES, or Snow Partridges, is more particularly applied to the species with a round or square tail, whose toes are furnished with feathers the same as the legs. Those that are most spread, become white in winter.

* Lagopus, hare or hairy-footed, is the ancient name of this bird.

Ptarmigan Grous. Lath. *Tetrao Lagopus.* L. Enl. 120 and 494. British Zoology, pl. M. 3. Naum, 1st Ed. Sup. 61. f. 115, 16.

The summer plumage is yellow, marked with small black lines, (and in this plumage it is the *Tet. Rupestris* of Lath.) Found in all the high mountains, where it remains during winter in holes which it makes in the snow.

In winter, they are pure white; tail, black; with the two middle feathers and tips, white; the male with a black spot on the lores, which is wanting in the females; their bill is feeble and compressed at the end; the claw subulate and arched.

Willow Grous. Lath. *Tetrao Albus.* Gm. *T. Saliceti.* Tem. Edw. 72. Frisch. 110, 1.

Of all the north; is larger, and has the summer dress redder; the belly remains white. In the summer dress it is the *Tet. Lapponicus,* Lath.

Its bill is strong, short, depressed, and blunt at the tip; its claws, long and white, and scarcely round; and in the winter there is no difference between the sexes. Found in the North of Europe and America.

The *Tetrao Mutus,* of Mutis; the *T. Lagopus,* of Retz; in summer, the *T. Cachinans,* of Retz, and the *Rehusak Grous,* of Latham.

There is, however, in Scotland, a *Ptarmigan* which does not change colour in winter. It is

The *Red Grous*, Lath. *Tetrao Scoticus*. Lath. Albin. I. 23, 4. British Zoology, pl. M. 3 Vieill. Gal. 221.

Varied with yellow, brown, and black; above, deep red, striped with blackish underneath; the legs, ashy, with the toes but little feathered.

The tail of only sixteen feathers; the side ones, blackish-brown, tipt. See head natural size, Temm. Gal. t. 9. f. 5.

We may separate under the name of

GANGA, or ATTAGEN,* PTEROCLES. Tem.

Species with a pointed tail and naked toes. They have only round the eyes naked; but the skin is not red; their thumb is very little.

The *Pin-tailed Grous*. Lath. *Tetrao Alchata*. L. Enl. 105, 6. Edw. 249.

Ganga is its Catalonian name. Alchata, or rather Chata, its Arabian name.

Of the size of a partridge, with the plumage like scales, yellow and brown; the two middle quills of the tail are much elongated into a point; the throat

* The Greek name of a heavy bird, rather larger than a partridge, with the plumage of the woodcock. It probably refers to the *T. Alchata*. L.

of the male is black. It is found in the South of France, and all round the Mediterranean.*

To these may be added, the species with two long linear tail-feathers.

Senegal Grous. Tetrao Senegalus, Lath. or *Pterocles Guttatus.* Tem. Enl. 130, and the female, Pl. Col. 345.

Bill, strong, cylindrical; quills, isabella, with black shafts; beneath, white, without any chest-band; throat, orange; belly, middle, black. Male, isabella; wing-coverts, brown, yellow tipt. Females, testaceous; chest and upper parts, black spotted. India, Egypt, and Coast of Barbary.

The female is the *Lybian Grous.* Lath. Hist. t. 128.

Singed Grous. Pterocles Exustus. Tem. Col. 354. and 360.

Bill, slender, attenuated; quills, brown, white tipt; chest-band, black; throat and coverts, yellow. Male, isabella; belly, brown, as if scorched, black in the middle. Female, ferrugineous-white; back, with crowded, arched, brown bands. The *Pterocles Senegalensis* of Lichtenstein. Egypt, Eastern Africa, and India.

The *Namaqua Grous*, Lath. *Bahtah Grous*, of Latham, Hist. *Pterocles Tachypœtes.* Tem. Gallin 715.

Ashy-brown; throat, yellowish; crown and neck,

* Found also in Arabia and India; the female with a white throat, and a black half-collar, wing-coverts not spotted, is the *Tetrao Caudacuta* of Gmelin, and the *Pterocles Setarius* of Temminck, and *Ocnas Cata*, Vieil.

ash; wing-coverts, tipped with shining-ash; chest, with a chesnut-white band; belly, purple-ash. Female, pale-reddish; neck and chest, brown streaked; body, brown, and rufous banded. The *Tetrao Namaqua*. Lath. Cape of Good Hope.

The following species have simply pointed tails.

Sand Grous. Lath. *Tet. Arenarius.* Palb. Nov. Coni. Petrop. XIX. pl. 8. or *Pterocles Arenarius.* Col. 52 and 53. the same as *Perdix Arragonica*, Lath.

Whitish testaceous, with oval yellowish spots; jugular, lunule black; collar, belly, and vent, black; quills, black and grey banded, white tipped. Found in Asia. South Europe, and Barbary.

The *Tetrao Orientalis Subindactylus* of Hasselquist.

Indian Grous. Lath. *Pterocles Lichtenstenii.* Tem. Col. 355, and 361. The male, 355, is at least nearly allied to *Tetrao Indicus*, Lath. from Sonnerat, ij. t. 96.

Banded with black; above, isabella; beneath, whitish; chest, brown; central, pectoral, and frontal band, black; head, brown. Female, without any chest band. Nubia. Length, nine to ten inches. The *Pt. Bicinctus.* Licht. Cat.

Double-banded Grous. Lath. II. *Pterocles Bicinctus.* Tem. Gal. of Licht. not Lath.

Ash-brown, with triangular white spots; beneath, white, brown streaked; forehead, black; eye-spot,

white; neck and chest, ashy-yellow, with a double black and whitish chest-band. *Hen*, with the bands and forehead, dark spotted; feathers, brown, red, and whitish streaked. Inhabits South Africa.

Crowned Sand Grous. Pterocles Coronatus, Licht. Col. 339, and 40.

Purplish-grey; top of neck and ears, yellow; forehead and orbits, white; chin and nasal streak, black; crown, purplish-grey, surrounded by a blue streak; wing-coverts, yellow, black spotted; tail, with black band, and white tips. Nubia.

Pterocles Quadricinctus, Tem. or *Oenas Bicinctus*. Vieill. Gal. 220.

Ash-yellow, black streaked; forehead, three banded; chest-bands, four, chestnut and white, and black and white. Hen, without the front or pectoral bands. India. Length, nine and a half inches.*

Lastly, the largest species

Sharp-tailed Grous. Lath. *Tetrao Phasianellus*. Gm. Edw. 117.

Testaceous, varied with blackish; chest, chesnut, white spotted; side of the neck and coverts with round white spots; tail, wedge-shaped; side feathers, white. The orbits of the males, very large. Cha. Bonap. iij. t. 19.

Temminck, and all former authors, have placed this bird with the true grous.

* See *Surmagur Grous*, Lath. Hist. viii. 257. from India. The *Gorto* Bruce's Trav. Co. 241; said only to have two toes, called the *Gorto Grous*, by Latham.

The best monograph of the genus is in Lichtenstein, Verneich, 1823; and Wagler's Systema Avium, 1825; and Obser. Tem. Pl. Col. t. 2. x. 1.

The PARTRIDGES. PERDIX, Briss.

Have both the tarsi and the toes naked; among these

The FRANCOLINS, Tem.

are distinguished by their bill being larger and stronger than the rest; their tail is also more developed, and they have in general strong spurs.

In the south of Europe there is one

The *Francolin Partridge.* Lath. *Tetrao Francolinus.** L. Enl. 147, 8. Edw. 246.

The feet, red; the neck and belly of the male, black, with round white spots, and a bright red collar.

The female varies with bluish-reddish-yellow; the side tail-feather, black, yellow banded; spurless. The *Tetrao Orientalis* of Hasselq., found in South Europe, Asia, India, and Africa.

Pondicherry Partridge. Tetrao Pondicerianus. Sonn. 2d Voy. ij. 165. Tem. Col. t. 213.

Body, above, red, with white and brown bands; beneath, white, blackish-brown, streaked; throat, red,

* *Francolino*, a name which signifies the prohibition against killing the bird that bears it. It is applied in Italy to many species which are reputed good as game.

with a black lunule; beneath, secondaries, reddish and pale-brown streaked; spurless. Found in India.

Pearled Partridge. Lath. *P. Perlatus.* Briss. pl. 28. A. f. 1. Viell. Gal. t. 313. The same as *Madagascariensis.* Sonn. II. 166. pl. 97.

Black-bay; neck, wing-coverts, and under parts, white spotted; back, secondaries, and rump, black, with narrow red bands; side of the head, with two black bands. Hen, lower part, banded; spurless. The *Perd. Sinensis.* Brisson, t. 28. f. 1. *Tetrao Sinensis,* Osb., and the young male, *Perdix Afra.* Lath. Found in India and China. Length, ten inches.

Some exotic species are very remarkable for having double spurs.

Ceylon Partridge. Lath. *Tetrao Bicalcaratus.* Lin. Pl. Enl. t. 137.

Feathers of brown, white streaked; crown, red; eyebrow, black and white; throat, white; chest and beneath, chestnut-black and white streaked. Found in Africa. The *Perdix Adamsonii,* Temm.

Clapperton's Partridge. *Perdix Clappertonii,* Children. Ruppel, Voy. t. 9.

Differs a little from the former; above, chesnut-brown; scaled with fulvous; beneath, whitish-fulvous, with longitudinal brown spots; forehead and chin spot black; throat, streak over and behind the eye, white; ears, chestnut. Central Africa. Captain Clapperton.

Brown African Partridge. Lath. *Perdix Spadiceus.* Sonn. ij. 169.

Deep-bay; crown and upper part of the neck, paler; orbits, naked; tail, long, rounded. Female, spurless. Madagascar.

Ceylon Partridge. Lath. *Perdix Zeilonicus.* Lath. Forster, Ind. Zool. t. 14

Blackish; nape and wing-coverts, with white arrow-shaped spots; beneath, blackish, brown and white streaked; tail, long, rounded, black; orbits, red. Female, spotless and spurless. The *P. Bicalcaratus.* Forster.

Sanguine Pheasant. Phasianus Cruentatus. Hardwicke. Pl. Col. t. 332.

With three or four spurs, and very bright colours, quite different from the rest of the genus.

Above, slate coloured, with yellow longitudinal streaks on the shafts of the feather; beneath, greenish yellow; chest, yellowish, irregularly red-spotted; face and upper part of throat, orange, yellow-spotted; crown and nape, whitish; tail-coverts, red-edged; vent, carmine-red. Nepaul. Mus. Hardwicke.

Perdix Gardneri. Gray. *Phasianus Gardneri.* Hardw. Lin. Trans. xv. 166.

Crested; minutely speckled and waved with dusky and brown; tail, black-brown, white speckled; face,

ears, and throat, pale-chestnut; crown and nape, lead colour. Snowy mountains of India. General Hardwicke.

M. Lesson has removed this bird to *Lophophorus*, without having seen it. Mus. Hardw. and Lin. Soc.

Curria Partridge. Lath. Hist. *Perdix Hardwickii.* Gray.

Bright chesnut-brown; head and neck, black, white banded; upper part of the back and wing-coverts, with metallic green spots, including a small triangular white spot; lores, rump, sides, thighs, and vent, with black spots, crossed by a yellow band; chest, yellow, black banded; quills and tail, metallic olive; tarsi, short, with two acute spurs. Female, dull olive; feathers, dark, edged at the tip; chin and breast, yellowish; crown, black, chestnut streaked; band over the eye, chestnut; tarsi, spurred, two-thirds of the lower end of the shafts of the down feathers, very thick and rigid. Length, fourteen inches.

Lunated Francolin. Perdix Lunulata. Valenc.

Top of the head, black, white spotted; back, red, white spots edged with black; beneath, reddish; front of neck, black streaked; each of the chest-feathers, with a black crescent; belly, black spotted; size of the partridge; beak, slender; tarsi, short, thick, armed with two large spurs. Bengal.

Cape Partridge. Lath. *Perdix Clamator.* Temm.

Blackish-brown, with narrow white lines; throat,

whitish; head and chest, black-brown; quills, ashy-brown. Hen, spurless. Africa. Length, sixteen inches.

Some of them have a naked skin on the throat.

Red-necked Partridge. Lath. *Tetrao Rubricollis.* Enl. 180.

According to Temminck this is the female of the *T. Nudicollis.*

And some unite the characters of the two preceding groups.

Naked-necked Partridge. Tetrao Nudicollis.

Brown; feathers, pale edged; beneath, bay, white streaked; orbits and front of neck, naked, red; spur, one on each tarsus. Hen, spurless. *T. Rubricollis,* Gmel. and *Perdix Capensis,* Lath. Found in Africa.

Add:

Cranch's Partridge. Perdix Cranchii. Leach. Tuckey, Voy. app. 408.

Cinereous-brown; beneath, whitish, freckled with dark-brown; the spot on the belly, elongate, and inclining to ferrugineous; throat, naked.

May be a variety of the former.

Some have only one spur on each foot, as

Le Vaillant's Francolin. Perdix Le Vaillantii. Valenc.

Chestnut-brown, with a pale-yellow broad streak down

the shaft of each feather; top of the head, brown, white streaked; thighs, black banded; spur, blunt; chest band extended up each side of the neck to the nostrils. Cape of Good Hope, De la Landes.

Long-beaked Francolin. Perdix Longirostris. Temm. *Tetrao Curvirostris.* Râffles.

Red-brown, black spotted; back feather, yellow edged; beneath, red-chestnut, spotless; chest (of the male), bluish-ash. Sumatra. Length twelve inches. The *Lanting* of the Malays.

Thoracic Francolin. Perdix Thoracica. Temm.

Green-brown, black spotted; chest with a large, round, grey shield, margined, and spotted with red; belly, yellow, black spotted. Female, not seen. Inhabits India. Length, eleven inches.

African Partridge. Lath. H. *Perdix Afra.*, Lath.

Ash-brown, with red, livid, black spots; shaft of feather, white; sides of neck, red; throat, white, but varied with black spots; sides and chest with large chestnut spots.

The male of *Perdix Gularis*, Tem., has long spurs, and therefore might be placed in this section.

And others again, with a very large bill, are altogether destitute of spurs.

Javan Partridge. Tetrao Javanicus. Ill. 17. a bad figure. There is a better, Col. 148, under the name of *Perdix Ayamkam.* Tem.

Body, black, and grey streaked; wings, red, black

spotted; throat and sides of neck, red and black varied; chest, ash; belly and sides, chestnut; toes and claws, very long. Inhabits Java.

The True Partridges

Have the bill not so strong as the last; the males have short spurs or simple tubercles; the females are without.

Every one knows

The Common Partridge. Tetrao Cinereus. L. Enl. 27. Frisch. 114. Naum. 1st Ed. pl. 3, f. 3.

The bill and feet ash-coloured; the head yellow; the plumage varied with different shades of grey; a marron spot on the breast of the male. This prolific game is one of the greatest delicacies of the table; and builds its nest and lives in the middle of our fields.

Perdix Cinereo alba. Lath. Frisch. t. 115. Is a variety. It is also sometimes found nearly white. The *Damascus Partridge; Perdix Damascena*, Lath. which is only half the size, and pale ash, varied with black and red, and beneath, yellowish white. It is also a variety. See Will. Orn. t. 29.

The *Guernsey Partridge.* Lath. *Tetrao Rufus.* L. Enl. 150.

The bill and feet, red brown, above, with the sides speckled with red and ash; the throat white, edged with black. Prefers hills and elevated spots.

Its flesh is whiter and dryer than that of the common partridge.*

The southern provinces of France produce—

The *Greek*, or *Red Partridge*. Lath. *Perdix Græca*. Briss. *P. Saxatilis*. Meyer, Enl. 231. Frisch. 116.

Which differs from the red partridge only in being larger, and having the plumage more ashy. It inhabits the sides of mountains.

Rufus-breasted Partridge. Tet. Petrosus. Gm. Edw. 70. Up. Em. t. 9, f. 2.

Brownish-ash; crown, chesnut; eyebrows, ash; wing-coverts, blue, spotted beneath, pale brown; collar, chestnut, spotted with white; hypochrondia, with a double black streak; tail-feather, orange tipped. Europe and Africa.

Mountain Partridge. Tet. Montanus. Gmel. Enl. 136. Frisch. 114. B.

This, according to M. Bonelli, is only a variety of the grey partridge, with the upper part of the body and chest, chestnut; beneath, pale fulvous; head, and upper part of neck, foxy.

* The *P. Rubra* of Brisson and Temm., sometimes found whitish, see Storr. Degli. Ucc. t. 225; Temminck thinks the *Caspian Partridge, Pedrix Caspia*, and *Kakelick*, Lath., Gmel. Il. iv. t. 10, with body above, white, with ashy lines, and undulated large spot, red eyebrows, and ashy chest, may be a variety. Found in Europe and Asia.

Hayes Partridge. Perdix Hayii. Tem. Col. 328, 9.

Vinaceous forehead; band under eye and ears, white; secondaries, rump, and middle of tail, black banded; sides of tail, chestnut; wings, black lined; female, pale[a] brown; head, and beneath, whitish, banded all over with brown; feet, red. Nubia.

Oriental Quail. Lath. H. *Perdix Personata. Horsf. Java. T. Orientalis.* Horsf. Lin. Trans.

Above, brown; beneath, ashy-brown; throat, line inside of neck, and eyebrow, white; crown, back of neck and collar, black; wing, belly, and vent, with brown and chestnut moons. Java. Length, ten inches.

The *Wood Partridge.* Lath. *Perdix Gularis.* Tem.

Brown; shaft of the feathers, white; crown and nape, olive-brown, with a white band above and below the eye; throat, red; chest and belly, with white streaks; quills, with black shafts. Bengal. Length, eleven inches. The *Perdix Sylvatica* of Dr. Hamilton. MS.

Eyed Partridge. Per. Oculea. Tem.

Head, neck, chest and belly, bright red; upper part of the back, black and white banded; rump, with triangular chestnut spots; wing-coverts, olive-ash, black spotted. Inhabits India. Length, ten and a-half inches.

Brown Partridge. Per. Fusca. Vieill. Gal. 212.

Brown, varied with white lines and spots; middle of the chest, red; belly, abdomen, and tail, blackish brown. Inhabits Senegal. M. Riocourt.

We insert

Gorget Partridge. Lath. H. viii. 302. *Perdix Scutata.* Gray.

Pale ash, black spotted; forehead, pale ash; chin, rufous white; eye streak, black and white banded, bordering the nape and crown; nape, and back of neck, chestnut; rest of neck, black, whitish streaked; lower part of neck and breast ferrugineous, divided by a white cross line; belly and vent, pale ash; secondaries, brown, rufous edged; primaries, white, brownish tipt; tail, very short, brown and red; under tail-coverts, black, white tipt. India. Length, eleven inches.

Chukar Partridge. Perdix Chukar. Gray.

Like *Perdix Textilis,* but grey brown, with the black band over the forehead, and passing through the eyes and uniting on the neck; a black spot on the chin, and chocolate brown ears. Length, thirteen inches. Mountain of Sinigur. Gen. Hardwicke.

Olive Partridge. Lath. *Perdix Olivacea.* n. *

Ashy olive; beneath, ashy; head and neck, chestnut; throat and neck, streak from the eye, white, black spotted; wing-coverts and secondaries, varied with chestnut and olive, spotted with black; sides of vent,

varied with chestnut, white, and black; tarsi, spurless. The *Tectur Kelaun* of the Moors.

Asiatic Partridge. Lath. *Perdix Cambayensis P. Asiatica.* Lath. Tem. Pl. Col. 447.

Above, grey, vermiculated with black; beneath, whitish, banded with black; throat, chestnut; eye-streak, cheeks, and sides of throat, white. The hen is reddish-grey beneath. India. The *P. Cambayensis* of Lath. *Cryptonyx Rufus*, according to Temm. is the young of this species.*

The QUAILS, COTURNIX,

Are smaller than the partridges, with a slender bill,

* See *Leona Partridge*, Lath. Hist. viii. 273, from Sierra Leona.

Top of head and nape, olive-brown; eyebrow-band, black and white; orbits, naked; cheek, a pale grey spot; chin and throat, black; neck and breast, and beneath, black, with cordate white spots; lower part, and neck and breast, mottled-brown, white streaked; wing-coverts, white streaked; quill, dusky brown; and rump, mottled, yellowish-brown; tail, short, rounded; sides, white, streaked; spur, sharp. Allied to the Francolin.

Beautiful Partridge. Lath. Hist. 274. India. *Perching Partridge.* Lath. H. 281. India. *Buff-breasted Partridge.* Lath. H. 296. Africa. *Mosambique Partridge.* Lath. H. 297. *Dusky-breasted Partridge.* Lath. H. 297. *Rust-bellied Partridge.* Lath. H. 298. *Red bill Partridge.* Lath. H. 299. India. *Oriental Partridge.* Lath. H. 300. India. *Gorget Partridge.* Lath. H. 302. India. *Olive Partridge. Lawrence Partridge*, and *Eye-brow Partridge.* Lath. Hist. In. 303, 304. India. *White-cheeked Partridge.* Lath. H. 305. *Chestnut-bellied Partridge*, and *Undulated Partridge*, and *Dwarf Partridge.* New South Wales. Lath. H. 306. *Elegant Quail.* Lath. H. 306. *Austral Partridge.* Lath. H. 308. *Marbled Quail*, and *Eastern Quail*, from India, and *Calao Quail.* Senegal. Lath. Hist. 318. *Perdix Ventralis.* Dict. des Sci. Nat. *P. Torqueola.* Valent. *P. Ferruginea.* Lath. Syn. 66.

tail shorter, without the red eyebrow, and without spurs.

All the world knows

The *Common Quail. Petrao Coturnix.* L. Enl. 170. Frisch. 117. Naum. 4, f. 4.

The back brown, undulated with black; a pointed white stripe on each feather; throat, brown; eyebrows, whitish. Celebrated for its migrations. This bird, heavy as it is, finds means nevertheless to traverse the Mediterranean.

Is the *Coturnix Dactylisonans* of Meyer and Temm. found in Europe, Asia, and Africa. Length, seven inches. Sometimes found more or less white.

Add to these, the

Chinese Quail. Lath. *Tet. Chinensis.* Lin. Enl. 126, f. 2. The *Tetrao Manillensis* of Gm. Son. 1st Voy. pl. 24, is the female.

Brown, varied with black spots, and white lines; chest and sides, bluish grey; belly, chestnut; cheeks, and arches on the neck, white, edged with black; throat, black. Female, ashy, varied with red and black; eyebrows and temples, red; throat, white; beneath, ash, with black waved moons. See Edw. t. 247. Male. Inhabits China and Molucca.

New Holland Quail. Lath. *Perdix Australis.* Lath. Vieil. Gal. 215.

Clouded chestnut, black streaked; shaft of feathers

white; beneath, ashy-red, with transverse black lunules. Female paler. Inhab. New Holland. Length, seven inches.

Per. Textilis. Tem. Col. 35.

Brown, varied with red and brown; feathers, with a central white streak; beneath, white, black streaked; throat, with a black spot; neck, with a black streak. Female paler; throat, brown. India.

Coromandel Quail. *Tet. Coromandelicus.* Son. II. 172.

Temminck regards this as the young male or female of the former; it only differs in wanting the black spot on the throat.

Madagascar Quail. Lath. *T. Striatus.* Lath. Son. II. t. 92, cop. Ency. Meth. t. 97, f. 2, and Tem. Col. 82, (very different from that of Lath. Syn. II. pl. 66.)

Chestnut brown, with white streak; beneath, black, with round white spots; head and neck, with two white streaks; throat, black; chest, chestnut. Madagascar. Length, nine inches. The *Coturnix Perlata.* Tem. Gal.

Gingi Partridge. Lath. *P. Gingica.* Lath. Son. II. p. 167, appears to me also to belong to this subgenus.

Fulvous grey; beneath, white; crown, chestnut; eyebrows, white; sides, ash; chestnut spotted chest;

band, white and chestnut. Females, brownish; throat and neck, brownish-red; chest, ash, black streaked; beneath, reddish-white, black spotted. India. Length, eight and a-half inches. Temminck arranges this as a partridge.

In addition to the above species, enumerated by the Baron, we add :—

Reddish Quail. Perdix Rubiginosa. Valenc.

Head, blackish, spotted with grey; back of the neck, bistre-brown; back, dark grey, varied with black; chest, grey, black spotted. Pondicherry, called kersa.

White-necked Quail. n. *Coturnix Torquata.* Mauduit.

Brown, black-banded; beneath, whitish, equally waved; crown, blackish; cheeks, black; throat, white, black edged; bill and feet, yellowish.

Grey-throated Quail. Perdix Grisea. Lath.

Pale grey, black banded; beneath, with concentric wavy black arches; crown, varied black and red; quill, brown. Madagascar.

New Guinea Quail. Perdix Novæ Guineæ. Lath. Ency. Method. from Sonn. t. 105. Up. Gm. t. 97, f. 3.

Brown, beneath, paler; wing-coverts, yellow edged; quills, black. Inhabits New Guinea. The three last are doubtful species.

The Colins, or American Quails,

Have the bill thicker, shorter, and more convex; the tail a little more developed. They perch in bushes, and, when pursued, in trees. Many of them migrate like other quails.

Among the species of the size of the partridge may be remarked:

Guiana Partridge. Lath. *Tet. Guanensis.* Gm. *Perdix Dentata.* Tem. *Odontophorus Rufus.* Vieill. Gal. pl. 211, which is not a *Tinamou*, as stated by Gmelin.

Reddish-ash, with blackish lines and *dots*; eye-brows, red; beneath, pale reddish-ash, obsoletely lined; quill, brown, black streaked; lower jaw, notched at the top. *Uru.* Azara, n. 334. South America.*

Among those of the size of the quail:—

Maryland Quail. Lath. *Tet. Mexicanus.* Enl. 149. Frisch. 11. The same as *Marilandus.* Albin. 1, 28, and as *T. Virginianus*, or *Perdix Borealis.* Temm. Vieill. Gal. 214.

Chestnut brown, varied with black and reddish; be-

* *Perdix Capueira*, Spix t. 76. a. Above, brown, varied with black, red, and white; beneath, ash; quills, white banded. Allied to *P. Dentata.*

P. Rufina, Spix. t. 76, b. Head, red, banded with black; nape, ashy; body, rufous; lores, red; bill not quite so high as the last. River Amazons.

neath, white, with black wavy bands; eyebrows and throat, white; throat-band, black; outer tail-feathers, ash. Female, paler; beneath temples and throat, yellowish.

Also, the *T. Virginianus*, *T. Coyolcos* of Gmelin. Length, eight inches. See Wilson a. o. vi. t. 47, f. 2. Perhaps *Perdix Hudsonicus*. Lath.

Malouine Quail. Lath. *Tetrao Falklandicus.* Enl. 222. Cop. Gm. 97, f. 1.

Brownish, with brown angular spot and streaks; beneath, white; head, spotted; chest, brownish yellow, with blackish arches. Falkland Islands.

Crested Quail. Lath. *Tet. Cristatus.* Enl. 126.

Frontal crest, long, slender; forehead and throat, whitish-red; neck, black spotted; tail, yellow streaked; wing-coverts, whitish, red edged; beneath, white, black and red spotted; belly, middle, red. Female, not crested; black spotted; beneath, black and white banded. North America.

Sonnini's Quail. Colin Sonnini. Perdix Sonnini. Tem. Col. 75.

Crest, nuchal, long, slender, brownish yellow; throat, chestnut; body, olive; tail and chest, reddish-ash, black spotted; beneath, chestnut, with black edged white spots. South America. Length seven inches.

Californian Quail. Lath. *Tet. Californius.* Sh. Nat. Mis. IX. pl. 345, and the Atlas to the Voyage of Perouse, pl. 36.

Lead-coloured; crest, vertical, erect; throat, black,

white margined; belly, testaceous, with black moons. California.

To these may be added,

Montercy Quail. Ortyx Douglasii. Vig.

Lead-colour, brown; crest, erect; wings, deep brown, yellow streaked; head, cheeks, and nape, brown, yellow lined; throat, white, brown marked; belly, white spotted. Montercy. Length, ten and a-half inches.

Ortyx Picta. Douglas
Lin. Trans. xvi. 143.

Brown; beneath, ferrugineous yellow, and black banded; throat, red-edged, with purplish white; chest, crown, and tail, lead-colour; crest, very long, black, linear; eyebrows, white; vent, ferrugineous. Female, slightly crested; throat and chest, ferrugineous, brown banded.*

The TRIDACTYLES, HEMIPODIUS,

Which have no thumb, and whose compressed bill forms a little projection under the lower mandible. They cannot be properly classed, until we are better acquainted with their anatomy. They live in polygamy, in sandy countries. Some of them,

* The *Mexican Partridge.* Lath. *Perdix Nœcra.* Gmel. from Seba 1, t. 64. f. 1, is a very doubtful species.

The TURNIX. Bonnat. ORTYGIS, Ill.

Have, indeed, all the appearance of the quails; their toes are completely separated, even to their base, and without small membranes.

Fighting Quail. Lath. H. *Hemip. Pugnax.* T. Col. 602.

Throat, black; eyebrows and temples, white and black, dotted; body above, reddish, varied with black and white; beneath, white and black lined.

In Java, this species is made to fight for amusement, as the cock is in England.

Black-necked Quail. Lath. *Tetrao Nigricollis,* Enl. 171.

Chest and neck, black; body, above, brownish chestnut, with black wavy lines; beneath, ash; wings, white spotted. *Tetrao Madagascarensis* of Gmelen. Madagascar.

Andalusian Quail. Lath. *Tet. Andalusicus.* Lath. Syn. IV. p. 2, figure of the title-page.

Black, with transverse fulvous bands; feathers, pale edged; beneath, reddish-white; crown with a white streak; eyebrows, reddish. The *Hemipodius Tachydromus.* Temm. South of Europe and North Africa. *Turnix Africanus.* Desfont. Lath. Hist. t. 132.

Black-fronted Quail. Lath. H. *Hemipodius Nigrifrons.* Tem. 610, and Vieill. Gal. 218.

Reddish-yellow; wing-coverts, black dotted; throat,

yellowish; chest, black, mooned; belly, white; forehead, three banded. India.

Hemip. Thoracicus. Tem. 622, (or *Turnix Maculatus.* Vieill. Gal. 217.)

Blackish-grey; beneath, yellowish; head, white; black dotted; chest, bay; wing-coverts with a black spot, and red band above it. Length, six inches. The *Luzonian Quail,* Lath. *Tet. Luzoniensis.* Son. 1 Voy. pl. 23, is identified by Temminck with this species.

White-spotted Turnix. Gm. *Hemip. Meiffrenii.* Tem. Col. 60, f. 1, of which Vieill. Gal. 300, has made his genus OXTYXELOS, which he places among the Waders, because the bottom of the tibiæ are without feathers.

Above, varied red and white; beneath, white; primaries, yellow blackish, edged with yellowish-white; tail rufous, white banded.

White-spotted Turnix. Hemip. Nivosus. Swainson. Zool. Ill. 163. This belongs also to Vieilliot's genus, TORTICELLE; but is treated by Temminck as the same as the last mentioned species.

Noisy Quail. Lath. *Tet. Suscitator.* Gmel. Is also a *Turnix.* See Bontius. Med. Ind. p. 65.

Yellowish-red, varied with black and grey; bill, rather long. Java. Size of a thrush. *Le Réveille-matin* of Buffon. See *Will. Angl.* t. 29. Sir S. Raffles

thinks that the habits of the *Tetrao Sinensis* and *Lugoniensis*, have been confounded together to form this species.

Others have been described as

Gibraltar Quail. Perdix Gibraltarica. Lath. *Hemip. Lunatus.* Tem.

Black; crown, black-banded; beneath, yellowish-white; wing-coverts, spotted; throat, white and black banded; chest, with black moons. Europe and Africa. Length, six inches.

Crescent Quail Hemipodius Maculosus. Tem. Vieil. Gal. t. 117.

Red, black spotted, and varied with bay-white and lead-colour; beneath, reddish; crown, with a white streak; eyebrows, red. Length, five and a half inches. New Holland; also in India. Gen. Hardw.; the *Balen Quail.* Lath. Hist. VIII. 341.

Mottled Quail. H. Lath. *Hemipodius Fasciatus.* Tem. Gal.

Brown, black spotted; beneath, red; crown, black; nape, red; throat and chest, white and black banded. Length, five inches. Philippine Islands.

Hottentot Quail. Lath. H. *Hemipodius Hottentotus.* Tem. Gall.

Whitish-red, spotted with black-red and whitish; belly, whitish; crown, blackish, red spotted; throat, white. Length, five and a half inches. Cape of Good Hope.

New Holland Partridge. Lath. *Perdix Varia.* Lath. Supp. Pl. Col. t. 454, f. 1.

Above, varied ashy, black, and reddish; wing coverts, black and white eyed; beneath, whitish; chest, purplish; quills and tail, ash-brown. Length, six inches.

Inhabits Oceania and New Holland.

Dussumier's Turnix. Hemipodius Dussumierii. Tem. Pl. Col. t. 454, f. 2.

Finely banded with red, ash, white, and black; wing, yellow-spotted, with red and brown; back of neck, pale-red, with a row of black spots on each side; belly and throat, white; rump, black, zizzaged. Length, five inches. India.

See also *Rock Partridge* and *Dubkee Quail*, Lath. Hist. viii. 335, from India. *Sultry Quail*, and *Spotted-necked Quail*, Lath. Hist. viii. 343, from Africa, and *Southern Quail*, Lath. 343, from New South Wales.

Syrrhaptes, Ill.

Are so far removed from the general type of the gallinaceous birds, that one is in doubt whether to place them in the same order.

Their short tarsi are plumed, as well as their toes, which are very short, and are united in part of their length; their wings, moreover, are extremely long and pointed.

Only one species is known, which belongs to the deserts of central Asia.

Heteroclite Grous. Lath. *Tet. Paradoxa.* Pal. Voy. Vieill. Gal. 222. *L'Hétéroclite.* Tem. Col. 25.

Fulvous; crown and bottom of neck and belly, vinaceous; edge of lower neck feather and wing-coverts, black, and belly-band black; tail and quill, blackish-ash; fulvous edged. Vieillot's figure is coloured from description.

We are also obliged to separate from *Tetrao*

TINAMUS. Lath. CRYPTURUS. Ill. YNAMBUS of Azara.*

An American genus, very remarkable for a thin, long neck, (although the tarsi are short,) covered with feathers, the end of the barbs of which are slender, and slightly frizzled, which gives to this portion of their plumage a particular appearance. The bill is long, thin, blunt at the end, slightly vaulted, with a little furrow on each side; and the nostrils are pierced in the middle on each side, and tend obliquely backward. Their wings are short, and they have scarcely any tail. The web at the base of their toes is very short. The thumb reduced to a little spur, cannot touch the ground. There is a slight nudity round the eye.

These birds perch upon low branches, or hide themselves in high grass; they live on fruits and

* Except his *Choro*, which is a water fowl; and his *Uru*, which is the *Tocro* of which we have already spoken among the Partridges.

insects; their flesh is good. In size they vary from that of the pheasant to that of the quail, and less.

Some of them (PEZUS, of Spix.) have indeed a little tail, hidden under the feathers of the rump.

Great Tinamou. Lath. *Tet. Major*, Gm. or *Tin. Braziliensis*, Lath. or *Tin. Magoua*, Tem. Buff. Enl. 476; and much better, Hist. des Oiseaux, IV. in 4°, pl. 24. *Pezus Serratus.* Spix. t. 76.

Deep olive, slightly and narrowly banded with black; beneath, pale reddish-ash; crown, red; secondaries, red and black, cross streaked; wings, beneath, white. Guiana and Brazils. Length, fifteen inches. The *Cryptura Magoua*, Vieil.

Cinereous Tinamou. Lath. *Tet. Cinereus.* Gmel.

Brownish-ash; crown and neck, reddish. Guiana and Brazils. Length, twelve inches.

Variegated Tinamou. Lath. *Tet. Variegatus.* Enl. 328.

Upper part of body and sides, brown, red scaled; crown and nape, blackish; neck and chest, red; throat and belly, reddish-white; bill, long; tail, very short.

Undulated Tinamou. Lath. H. *Tinamus Undulatus*, Tem. or *Cryptura Gubercola.* Vieil. Gal. t. 216, differ very little from last.

Body above, neck, and sides of chest, blackish-brown, red banded; beneath, whitish-yellow; wing-coverts, very large; quill, chestnut. Paraguay. Length, twelve inches. The *Ynambu Rayé.* Azara.

Obsolete Tinamou. Lath. H. *Tin. Apequia. T. Obsoletus.* Tem. Col. 196.

Above, brown, slightly clouded with black and red; beneath, chestnut; throat, ash; nape and crown, darker; sides, black banded; tail, very short. Length, eleven and a half inches. The *Ynambu Bleuâtre.* Azara, n. 330. The *Crypt. Cærulescens.* Vieil. D.

Tataupa Tinamou. Lath. H. *Tin. Tataupa.* Tem. Pl. Col. 196, or *T. Plumbeus,* Swainson, Ill. 19, or *Pezus Niamba,* Spix. 78.

Blackish-red; crown, temples, and nape, ashy-black; throat and neck, white; chest, beneath, and edge of wing, ashy lead colour; feather of the thighs, black edged. Length, nine inches.

Crypturus Parvirostris, Wagler, is perhaps the female of this species.

Nocturnal Tinamou. Lath. H. *Tinamus Noctivagus.* Pr. Max. or *Pezus Zabele,* Sp. 77.

Red orbits; throat and abdomen, ferrugineous; crop and neck, ash; chest, chestnut; back, wings, and tail, ferrugineous, black banded. Length, twelve inches.

Macaco Tinamou. Lath. H. *Tin. Macaco,* or *Vermiculé.* (*T. Adspersus, T.*) Col. 369, or *Pezus Yapura.* Sp. t. 78.

Brownish-red, with black wing-bands; crown, brown; throat, white; neck, chest, and belly, ashy-waved, with deep ash and black; belly, whitish. Brazil. Length, eleven inches.

Tinamus Vermiculatus. Tem. Pl. Col. 369. *Crypturus Adspersus.* Licht.

Above, ash-brown, with narrow white lines and dots;

throat, white; crop and chest, one coloured; belly, whitish; vent and thigh, ferrugineous; latter, black-banded. Length, eleven inches. Brazils. Wagler thinks this distinct from *T. Adspersus* of the Temm. Gallin.

Little Tinamou. Lath. *Tet. Sovi.* Gm. or *Tin. Sovi.* Lath. Buff. Enl. 829.

Brownish-red, slightly clouded with black; beneath, ashy-red; crown, temples, and nape, black; neck, beneath, ashy-olive. Length, nine inches. The young bird has been generally described.

Tao Tinamou. Lath. H. *Tinamus Tao.* Temm. *Cryptura Solitaria.* Vieil. D. D.

Blackish, ashy-waved; eyebrows, cervical streak, cheek and back of neck, black and white spotted; belly, ashy, paler waved; belly, red, black banded. Brazil. Length, 19 to 20 inches.

Oariana Tinamou. Lath. H. *Tinamus Strigulosus.* Temm.

Reddish; tips of feather, black-edged; wing-coverts, varied with yellow spots and black streaks; forehead and crown, black; neck, red; body, beneath, ashy-yellowish, waved; tail, long. Brazil. Length, ten inches.

Dwarf Tinamou. Lath. H. *Tinamus Nanus.* Temm. *Ynambu Canape.* Azara, n. 328.

Body, and neck above, red, varied with white and black; beneath, whitish; chest, streaked; sides, banded with red; nape and temples, reddish, black dotted. Paraguay. Length, six inches.

Others (TINAMUS of Spix) have no tail whatever. Their nostrils are a little more backward.

Spotted Tinamou. Lath. H. *Tin. Ynambui*, n. 327, d'Azara. *T. Maculosus*, Tem. or *T. Major*, Spix. 80.

Body, above, brownish-red; feathers, white-spotted, reddish-fringed; secondaries, red and black banded; throat, white; neck and chest, black-streaked. Paraguay. Length, nine or ten inches. The *Cryptura Fasciata* of Vieil. N. D.

Tin. Medius, Spix. t. 81.

Above, reddish, black banded, strigilated with white; beneath, ferrugineous; chest, ferrugineous and black spotted; wing-coverts, black banded; tail, long. Length, eight inches.

Wagler regards *Tinamus Major*, Spix. as a species by itself, and thinks that *T. Medius*, Spix. is the source of *T. Maculosus*, Temm.

Tin. Boraquira, Sp. 79.

Whitish, white strigilated; back, brown, black banded and lincolated; throat, belly, and thighs, white; crop, brown spotted; chests, sides, and wing-coverts, whitish black waved. Length, ten inches.

Tin. Canape. T. Pavoninus. Tem., of which *Tin. Minor*, Sp. 81, appears to be the female.

Female: above, red, slightly, black lettered, and white strigilated; beneath, ferrugineous; head, red, black lettered; wing-coverts, whitish black banded. Length, seven inches.

These three species are very much alike. They form the genus *Nothura* of Wagler.

We ought to distinguish RHYNCHOTUS, of Spix. in

which the bill is stronger without any furrow; a little arched and depressed, with the nostrils pierced towards its base.

Rufescent Tinamou. Lath. H. *Tin. Isabelle. T. Rufescens.* Tem. Col. 412, or *Rhyncotus Fasciatus.* Sp. 76, c. 1.

Body, above, ashy-red; feathers, white and black banded; edge of the wings, reddish; ears, black; beneath, yellowish-red, waved with brown; sides and belly, ashy. America. Paraguay. Length, fifteen inches. Egg, violet. The *Cryptura Guagu.* Vieil.

Temminck, Lesson, and others have placed the genus *Megapodius* in this order; but Cuvier has placed it with the *Palamediæ*, in the Wading Birds. Consult, also, the *Barred-tail Tinamou.* Lath. H. viii. 216.

The Pigeons. Columba. L.

May be viewed as forming a link between the gallinaceous and the passerine birds. Like the former, they have the bill vaulted, the nostrils opening in a large membranaceous space, and covered with a cartilaginous scale, which forms a swelling at the bottom of the bill. The osseous sternum is deeply and doubly emarginated, although it is a little differently arranged from that of the passerine birds. The crop is extremely dilated, the lower larynx furnished with a muscle peculiar to it; but their toes have no other membranes between their base than such as result from a continuation of their

borders. Their tail has twelve quills. They fly well; live at all times monogamously; build in trees or the clefts of rocks, and lay but a small number of eggs, in general two, though it is true that they repeat their laying. The male sits on the eggs as well as the female. They feed their young with the macerated grains, which they bring up from the crop. Only one genus of them is made, though it has been attempted to subdivide it into three subgenera, founded on the relative strength of the bill, and proportions of the feet.

The Gallinaceous Pigeons. Vaill.

Approximate to the common gallinaceous birds closer than either of the other subgenera, by their more elevated tarsi, their gregarious habits, and seeking their food on the ground without perching. Their bill is thin and flexible.

Carunculated Pigeon. Lath. H. *C. Carunculata.* Tem. Pl. lii. *Colombe-galline.* Vaill. 278.*

This species is more particularly allied to the gallinacea by the nudities and caruncles which distinguish the head.

Great Crowned Pigeon. Lath. *Goura.* Tem. Pl. II. *Colombihocco.* Vaill. 278. *Col. Coronata.*

* Ash-coloured; belly and rump, white; tail, brown. The female without any caruncle. South Africa. Length, ten inches.

Gm. Son. 104. Enl. 118. Tem. Pigeons, pl. 1. Vieil. Gal. 197.

This is also allied to the last order, at least in size, which is nearly equal to that of a turkey. Slate-blue, with marron and white on the wing; the head is ornamented with a crest of vertical slender feathers. They are bred in the poultry-yards in Java, &c.; but the species has not hitherto been propagated in Europe.

M. Vieillot has made his genus GOURA, or LOPHYRUS, Galer. pl. 197, of this species

Nicobar Pigeon. Lath. *Col. Nicobarina.* L. Enl. 491.

This is also allied to the poultry by the long and loose feathers which adorn the neck, as in the common cock. It is of a very brilliant golden-green colour, with a white tail. It is found in various parts of India.*

The following species are also arranged in this subgenus, which is scarcely determined enough.

Blue-headed Turtle. Lath. *Col. Cyanocephala.* Lath. Enl. 174. Vaill. 281. Tem. Pig. 3.

Vinaceous-brown; head and throat, blue; subocular spot, white.

Partridge Pigeon. Lath. *Col. Montana.* Lath. Edw. 119. Tem. 4.

Rufous; chest, vinaceous; quills, rufous, with subo-

* Male with a compressed caruncle.

cular white spots; throat and orbit, naked, blood-red. South America. Length, eight and a half inches.

Martinico Pigeon. Col. Martinica. Enl. 141, 162. Vaill. 282. Tem. 5 and 6.

Violet; chest, vinaceous; belly, reddish; quill, brown; internally, reddish; subocular spot, violet-brown. Female, violet-brown; chest and abdomen, brownish-white. South America. Length, nine inches.

White-fronted Pigeon. Col. Erythrothorax. Tem. 7.

Brown; face, white; neck and chest, purple; nape, with a violet band, with golden-green reflections; belly, red; sides of tail, black; ash-tipt. America. Length, ten and a half inches.

Red-breasted Turtle. Lath. *Col. Cruenta.* Lath. Son. 20, 21. Tem. 8, 9.

Grey; neck, beneath, white; nape, violet; wing-bands, three, greyish; chest spots, blood-red, varies, sometimes white, with a blood-red chest spot. *C. Sanguinea.* Lath. Molucca. Length, ten and a half inches.

White-bellied Pigeon. Lath. *Col. Jamaicensis.* Tem. 10.

Purplish-brown; nape, varied purple and blue; forehead and throat, whitish; beneath, vinaceous; tail, bluish white tips on the side. South America. Length, ten and a half inches.

Talpocoti Pigeon. Col. Talpacoti. Tem. 12.

Cinnamon; head, blue; scapular, black lined; quill, brown; tail, black, rufous tipped; outer edge of

tarsi, feathered; wing, inside, black. South America. Length, seven inches.

Ground Dove. Lath. *Col. Passerina.* Enl. 243, 2. Cates. 26.

Body, above, ashy-brown; beneath, violet-blackish, scaled; quills, red, blackish-edged, and tipt; wing, with steel coloured spots; tail, middle, ash, sides, blackish. South America. Length, six inches.

Passerine Pigeon. Lath. *Col. Minuta.* Enl. 243.

Body, above, pale-brown; throat and chest, pale-violet; bent of wing, with three or four violet spots; end of wing, with six spots; quill, brown, rufous edged; tail, blue-black, with a timud band, two outer white tipt. South America. Length, 6 inches.

Hottentot Pigeon. Lath. H. *Col. Hottentotta.* Tem. Vaill. 283.

Rufous; forehead and throat, white; neck and chest, vinaceous-ash, white and black mooned; belly and abdomen, vinaceous; feather above, rufous; beneath, ashy. South Africa.

Col. Cobacola. Spix. t. 7. f. 1.*

Above and beneath, cinnamon; head, lead-coloured; quills, black; wings above, with eight or nine black streaks; tail, shortish, equal; above, cinnamon; beneath, black. Length, six inches. Brazils.

Col. Griseola. Spix. 75.

Brownish-grey; head and chest, scaled; quills, rufous, brown edged; tail, equal, short, brownish-grey; beneath, black; outermost feathers, white tipt; wing-

* Add *Picui Pigeon*, Lath. *Columba Picui*, Tem. from Azara, n. 324. South America. Length, seven inches.

coverts, ashy-white tipt. Length, five inches. Brazils.

Ordinary Pigeons. Vieil.

Have the feet shorter than the last; but the bill is thin and flexible, as with them.

The French possess four wild species.

Ring Pigeon. Lath. *Col. Palumbus.*

Is the largest. It inhabits the forests, especially those of green trees; is ash-coloured, more or less bluish; the breast vinous-red, and is distinguishable by white spots on the sides of the neck and wings.

Stock Pigeon. Lath. *Col. Œnas.* L. Frisch. 139.

Slate-grey, with the breast vinous; the sides of the neck, changing-green. Rather less in size than the last, but of corresponding habits.

Biset Pigeon. Lath. *Col. Livia.* Briss. Enl. 510.

Slate-grey; round the neck, a changeable-green; a double black band on the wing; the rump white.

From this species we derive the pigeons of our dove-houses; and, as appears, the greater part of our countless domestic races, in the production of which the mixture of some other adjoining species may have had some influence.

Common Turtle. Lath. *Col. Turtur.* Lin. Enl. 394.

With a yellow mantle, spotted with brown; neck, bluish, with a black and white spot on each side.

It is the smallest of our wild species, and lives in the woods in the manner of the ring-dove.*

We breed, as flyers, and for amusement,

Collared Turtle. Lath. *Col. Risoria.* L. Enl. 244. Frich. 44. Tem. 44.

Which appears to have been originally from Africa; white, paler underneath, with a black collar on the nape.

Other pigeons with a square or round tail, are

Chestnut-shouldered Pigeon. Lath. *Col. Spadicea.* Tem. 1.

Head and neck, reddish, golden-green; humerus, bay; back and wings, bluish; belly and abdomen, white. Norfolk Island. Length, eighteen or twenty inches.

* The Chinese variety does not differ from the European, except that the under part of the body is vinaceous, &c. The *Spotted Necked Turtle*, of Latham, the *Portugal Doves*, *Luzonian Turtle*, and *Chinese Turtle*, of Latham, are varieties of this species. This is thought to be the stock of all the domestic pigeons, including *Col. Hispanica*, *Col. Dasypus*, *Col. Cristata*, *C. Norwegica*, *C. Barbarica*, *C. Cucullata*, *C. Hispida*, *C. Turbita*, *C. Laticauda*, *C. Gyratrix*, *C. Galeata*, *C. Turcica*, *C. Tubellaria*, *C. Gutturosa*, *C. Eques*, *C. Percussor*, *C. Jubata*, and *C. Frontalis*, of Latham and Brisson. The *C. Vinacea*, of Latham, is only a variety of this species, found in India and Africa.

Nutmeg Pigeon. Lath. *Col. Œnea.* Enl. 164. Tem. 3, 4. Voy. de Freyc. 29, of which *Col. Pacifica* is the male according to Tem.

The *Col. Océanique.* Less. and Garn. Voy. de Duperrey, 41, is nearly allied to this.

Body, golden-green; bill, greenish; chest and belly, beneath, bluish-grey; quills and tail, bluish-green. Female, head, chest, and belly, greyish-red; quill and tail, black. Molucca and South Sea Islands. Length, seventeen inches.

Spotted Ring Pigeon. Lath. H. *Col. Arquatrix.* Vaill. Afr. t. 264. Tem. Pig. t. 5.

Bluish-purple; chest and beneath, black and purple varied; head, bluish-grey; belly and wing, white spotted; feet, feathered. South Africa. Length, fifteen inches.

Col. Armillaris. Tem. 6.

Blue-black; face and necklace, white; belly and vent, white, with oval black spots; tail, white, tipt. South Sea Islands. Length, fifteen inches.*

White Nutmeg Pigeon. Col. Littoralis. Son. 103. Tem. 17.

White; tips of primaries and tail, black. The *Columba Alba* of Lath. Length, thirteen inches. Builds in rocks on the sea shore.

Bronze-winged Pigeon. Lath. *C. Chalcoptera.* Tem. 8.

Brownish-ash, red edged; forehead and cheek, white;

* Temminck regards the *White-faced Pigeon, Col. Melanoleuca*, Lath. as a variety. Greenish-black; beneath, black spotted; crown, ash, with a triangular red spot behind the eye.

wing-band, golden-bronze, green tipt; tail, black tipt. New Holland. Length, fifteen inches.

Ferrugineous-vented Pigeon. Lath. *C. Cristata.* Tem. 9.

Head, subcrested; neck and chest, ashy-white; humerus bay; vent ferrugineous; tail blackish. Friendly Islands. Length, thirteen inches. The *Col. Pacifica* of Latham.

Ring-tailed Pigeon. C. Caribæa. Tem. 10.

Head, lower part of neck, and chest, purplish; back, rump, and tail, bluish; tail with a black band; neck, shining copper colour.

White-crowned Pigeon. Lath. *C. Leucocephala.*
, Lath. Catesby, 65. Tem. 13.

Bluish; orbits and crown, white; quills and tail, brown; nape, shining-green, black edged. South America. Length, thirteen inches.

Scallop-necked Pigeon. Lath. *C. Speciosa.* Enl. 213. Tem. 14.

Ferrugineous; tail, short, blackish; lower part of neck and chest, red, white, and purple waved. Cayenne.

Grey Pigeon. Lath. *C. Cerensis.* Tem. 15.

Body, above and beneath, grey-brown; head, neck, throat, and chest, vinaceous-purple; lower neck-feather, scale-like, shining; quill and tail, grey-brown. South America.

Triangular-spotted Pigeon. Lath. *C. Guineæ.* Edw. 75. Vaill. Afr. 265. Tem. 16.

Body, purplish-brown, with violet reflections; wing,

with triangular white spots; tail, black tipt; chest feather, two-forked. South Africa. Length, twelve inches.

Madagascar Pigeon. Lath. *C. Madagascariensis.* Enl. 11. Vaill. Afr. 266. Tem. 17.

Blue; tail, scarlet; feet, feathered. Madagascar. Africa. Length, eleven and a-half inches.

Naked-cheeked Pigeon. C. Gymnophthalmos. Lath. Tem. 18.

Head and neck, chest and belly, pale vinaceous; neck feather, scale-like; back and wing, brown; rump and tail, ash. India. Length, thirteen inches.

Hackled Pigeon. Lath. *C. Franciæ.* Lath. Son. 101. Tem. 19.

Blue; base of bill and orbit, scarlet; rump and tail, red; feather of neck, slender; apex, long, pointed. South Africa. Madagascar. Length, thirteen inches.

Red-crowned Pigeon. Lath. *C. Rubri-capilla.* Lath. Son. 57. Tem. 20.

Violet-black; crown and orbit, naked red; upper part of back and chest, greyish; feet, feathered. Islands of Indian Ocean. Length, ten inches.

Elegant Pigeon. Lath. H. *C. Elegans.* Tem. 22.

Brown; nape, whitish-ash; chest, belly and abdomen, ash, with a reddish-brown chest spot; tail, ash, with a black cross-band. Van Dieman's Land. Length, eleven inches.

Black-banded Pigeon. C. Cincta. Tem. 23.

Head, neck, and chest, yellowish white; chest-band,

black; back and wings, blackish; belly, abdomen, and thighs, yellow; tail, ashy tipt. Length, thirteen inches. India.

Russet Pigeon. C. Ruffina. Tem. 24.

Violet; throat, quills, and tail, greyish; lower part of back, bluish-grey. Male, with the occipital feathers shining-green. Guiana. Length, eleven inches.

White-winged Pigeon. Lath. *C. Aurita.* Temm. *C. Leucoptera.* Edw. 76. Tem. 25.

Reddish brown; necklace-collar, golden violet; wings, black spotted; throat, white; lower part, ashy; middle of tail, brown; sides, black-ended and white tipped. Males, golden under the ears. The female is *C. Martinicana*, Lath. South America.

Javan Turtle. C. Javanica. Enl. 177. Tem. 26. Son. 66.

Green; head, bluish white; neck and chest, vinaceous red; belly, duller; quills and tail, blackish blue. Java. The *C. Albicapilla*, *C. Indica*, and *C. Cæruleocephala*, of Latham, are only varieties.

Jamboo Pigeon. Lath. *C. Jamboo.* Lath. Tem. 27, 8.

Green; head, red; throat, black; chest and belly, white; chest-band, rosy. Female, body, neck, and chest, green; forehead and throat, brown; belly, whitish. Sumatra. Length, nine and a half inches.

Violet-naped Pigeon. C. Violacea. Tem. 29.

Forehead, neck, belly, and abdomen, white; chest, whitish-violet; above, violet-red; nape, and upper

part of back, shining golden-violet. South America. Length, nine inches.

Black-capped Pigeon. *C. Melanocephala.* Lath, Enl. 214. Tem. 30.

Green; head, ash; nape, black; throat and belly, yellow; vent, purple scarlet; tail, equal. Ind. Zool. t. 7. Java. Length, nine inches.

White-masked Pigeon. Lath. *C. Larvata.* Vaill. Af. 269. Tem. 31.

Face, white; nape, neck and chest, violet, varied with golden green; wings and back, brown; belly, reddish. South Africa. Length, 10 inches.

Silky Pigeon. *C. Holosericea.* Tem.

Green; throat, white, with a white and a black chest-band; wing, with two ash bands; belly, and lower tail-coverts, yellow; quill, two forked at the top. Islands of Pacific Ocean. Length, ten inches.

Striated Turtle. Lath. *C. Sinica.* Lin. Albin, III. 46.

Brown, black-banded; belly, blood red; quills, black; middle wing-coverts, white. China.

Green Turtle. Lath. *C. Viridis.* Enl. 142.

Brassy neck; beneath, violet-purple; side of tail, yellow tipped. Amboyna. Length, eight inches.

Garnet-winged Pigeon. *C. Erythroptera.* *Tem.* 55.

Black; nape, humerus, and wing-coverts, bright garnet-red; back and quills, black; forehead, eye-brows, throat, and chest, white; tail, middle, ashy

tipt. Islands of Pacific Ocean. Length, nine and a half inches.

Whiskered Pigeon. C. Mystacea. Tem. 46.

Throat and spot under the eyes, white; front of neck and nape, green and shining violet; chest and belly, vinaceous; back, and wing-coverts, brown; quills, rufous. South America.

Temminck's Pigeon. C. Superba. Tem. 33.

Green; head, purplish; nape, reddish; neck, ash; spurious wings, girth with blue; wing-coverts, with bluish-black spots; belly and vent, white. Pacific Islands. Length nine and a half inches.

Tambourin Pigeon. C. Tympanistria. Vaill. 272. Tem. 36.

Forehead, eyebrows, and lower parts, white; neck, back, and wings, olive-brown; quill, red; tail, brown; side-feather, with a black terminal band. South Africa. Length, nine and a half inches.

Azure Pigeon. C. Cærulea. Tem. 37.

Blue; throat, cheeks, and belly, white; chest, vinaceous-brown; tip of bill, whitish. India. Length, nine inches.

African Turtle. Lath. *C. Afra.* Enl. 160. Vaill. 271. Tem. 38, 39.

Grey brown; beneath, whitish; wing-spot, violet-azure; base, and spot at end of outermost tail-feather, white; wing, sometimes spotted with shining green. Africa.

Geoffroy's Pigeon. C. Geoffroy. Tem. 57.

Ashy-white, with five or six shining violet-green spots at the point, and seven or eight brown spots at the end of the wing; quills, blackish-brown. Brazils. Length, seven and a half inches.

Varied Pigeon. C. Cinerea. Tem. 58. Female, Col. 260.

Ashy; wing, back, and middle of tail, brown-ash; side of tail, black; wing-spot, with quadrangular and round spots; tail, quadrate. Brazils. Length, seven inches.

Double-ringed Pigeon. C. Bitorquata. Tem. 40.

Head, ash; neck, chest, and belly, vinaceous; back and wings, ashy-brown; quill, ash; belly, white, with a white and black collar; tail, long. South Asia. Length, eleven inches.

Vinaceous Pigeon. C. Vinacea. T. 41.

Head, neck, and lower part, vinaceous purple; wing, back, and tail, blackish-brown. South America. Length, ten inches.

Surat Turtle. Lath. *T. Tigrini.* Son. 102.

Head, upper part of neck and chest, vinaceous ash; nape, with a black lunule, intermixed with white; back and wing, ash, brown spotted; cervical feather, sinuated. China. The *C. Suratensis* of Lath.

Cambayan Turtle. Lath. *C. Cambayensis.* Vaill. 270. T. 45.

Grey; beneath, white; head, rather vinaceous; neck, beneath, black, varied with red; sides of tail, part

black and grey; wing-coverts, black-grey; belly, white. Africa and South Asia. Also, *C. Senegalensis*, Lath.

Malabar Turtle. Lath. *C. Malabarica.* Tem.

Ash; beneath, white; wing-coverts, with oval spots; side of tail from the base to the middle, black and white. Malabar.

White Turtle. C. Alba. Tem. 46.

Body, white; tail, short. Bill, brown; iris and feet, red. South Asia. Domesticated in Europe.

Squammebus Pigeon. C. Squamosa. Tem. 59.

Brownish-ash, black-scaled; wing, white-spotted. Brazils. Length, seven inches.

Malacca Turtle. Lath. *C. Malaccensis.* Mus. Carl. 67. Edw. 16. Tem. 47.

Body, ash; back and wing, with lunate brown spots; neck, and sides of chest, undulately lined; belly, vinaceous white.

Also, *C. Bantamensis*, and *C. Striata*, Lath. South Asia. Length, eight inches.

Great Tailed Pigeon. C. Macroura. Enl. 329.

Tail as long as the body, white tipt; body, cinnamon; beneath, whitish. Ceylon.

Porphyry Pigeon. C. Porphyrea. Tem. Col. 106.

Head, neck, and breast, bright red; chest-band, white and black; abdomen, ash; back and wings, green; vent, bright olive; tail, deep green; beneath, two shades of grey. Molucca.

Double-crested Pigeon. C. Dilopha. Tem. Col. 162.

Forehead, nape, and crest, ashy grey; wings and back, dark; occipital crest, deep rufous; tail, blackish, with a greyish-band. New Holland.

Magnificent Pigeon. C. Magnifica. Tem. 163.

Head and neck, white; front of throat, middle of chest, and beneath, violet-purple; thighs, and vent under wing-covert, bright yellow; back, wing, and sides, brilliant green, varied with yellow on the wing; tail, ash. New Holland. See *Col. Puella*, Lesson, exactly like, but half the size. Length, sixteen inches.

C. Lacernulata. Tem. Col. 164.

Head and cheeks, blue ash; throat, pale vinaceous; nape and back, deep vinaceous; chest, and beneath, ashy vinaceous; vent, rufous; quills, black, with greenish reflections; tail, bare, blackish, and lead-coloured. Java. Length, fifteen inches.

C. Capistrata. Tem. Col. 165.

Forehead and orbits, ash; throat, white; nape, purplish ash; chest, sides, and belly, vinaceous ash; vent, white; back, and wing-coverts, deep purple; quill and tail, black ash; tail, ash tipt. Batavia. Length, fourteen inches.

C. Locutrix. Pr. Max. Col. 166.

Top of head, breast, quills, wings, and back, dark

ash; belly, light ash; cheeks, vinous; bottom of nape, spotted, each feather with two bright vinous spots. Brazils.

P. Leucomela. Tem. Col. 186.

Head, neck, and body, beneath, white; back, and edge of scapular and secondaries, bright red; wing, rump, and tail, black brown. New Holland.

C. Scripta. Tem. Col. 187.

Ash-brown; large wing-covert, with opaline purplish reflection; cheeks and throat, white; black diverging line, chest, and beneath, black ash. New Holland.

C Dussumierii. Tem. Col. 188.

Head, vinaceous ash; nape, vinaceous; belly and sides, whitish; the sides, neck, collar, back, scapular and wing-coverts, ashy-black; loins, metallic-green; side tail-feather, white-edged. Philippines.

White-eared Pigeon. C. Leucotis. Tem. Col. 189.

Head, ash; occiput, olive; a black line from the beak to the top of the ear; ears, white; neck, metallic green; throat, reddish; wings, chest, and belly, metallic-olive brown; tail, metallic-purple, black tipt. Manilla. Length, nine inches.

C. Xanthonura. Cuv. Col. 190.

Head and nape, deep red; throat and beneath, brown; back, green; middle tail-feathers, olive, the rest bright

reddish; back and wing-feathers, tipt with light red. South Sea Islands. The *Columba Pampusan*, Quoy. and Gam. Voy. t. 30. (see p. 92.)

Painted Pigeon. C. Picturata. Tem. Col. 242.

Head, nape, and throat, bluish-ash; breast and belly, light vinaceous; on the sides of the neck the feathers are bifid; two middle tail-feathers, brown, the rest grey. Isle of France.

C. Perspicillata. Col. 246.

Head and nape, deep bluish-ash; throat, and beneath, light ash; back, green, the feathers tipt with yellow; tail-feathers and quills, deep blue; feet, red; the eye in a lilac spot, surrounded with white. Molucca Islands.

C. Luctuosa. Reinw. Col. 247.

Head, body, and wing-coverts, light-ash, nearly white; quills, slate; tail, black. Molucca.

C. Hyogastra. R. Col. 252.

Top and sides of head and large wing-coverts, slate; body, quills, and tail, above, deep-green; belly, with a deep vinous irregular patch; vent, yellow. Celebes.

C. Monarcha. R. Col. 253.

Front, top of head, and patch on breast, ultra-marine; streak over the eyes, throat, and vent, yellow; the rest, deep-green; quills, yellow-edged. Celebes.

C. Humilis. Tem. Col. 258.

Head and breast, lilac-ash; back, brown; belly,

whitish; larger wing-coverts, ash; tail, brown; beneath, half way up, ash barred. Bengal.

C. Pinon. Quoy. and Gam. Voy. de Freyc. 28.

Head, neck, chest, and larger part of the back, ash-brown; wing and tail, slate-grey; tail, with a white band; feet, red. Isle of Baway, New Guinea.

C. Araucana. Less. and Garn. Voy. de Duperry. 40.

Head, back, crop, and belly, ochreous-red; wings and rump, ash; quills, brown, with a narrow yellow line; tail, grey, tipped with white; neck, with metallic scales. Chili.

C. Cayanovirens. Ib. 40.

Green; nape and wing-spots, blue; belly, yellow-white; quills, brown, yellow edged. The female, t. 41. f. 2. is ash on the forehead and throat, with a red spot on the chest, and vent yellow and white.

C. Zoœ. Ib. 29.

Head, cheeks, and belly, grey; crop, ash; neck and chest, vinaceous-grey; back and wing-coverts, red-brown; rump, quills, and tail, green; chest-band, black; tail, beneath, blue.*

* There have also been named by Ornithologists,

Picazuro Pigeon, Lath. *Col. Picazuro,* Tem. Gal. *Col. Loricator,* Lich.

Tiger Pigeon. Lath. *Col. Maculosa,* Tem. *Col. Poiciloptera,* Vieil.

Scarlet Pigeon, Col. Miniata, Tem.

Egyptian Pigeon, Lath.

New Zealand Pigeon, Lath.

Spotted-green Pigeon, Lath.

The species of this division are numerous, and may be subdivided, by the tarsi being feathered or naked, and by the nudity, or otherwise, which is found round the eyes of some of them.

Mr. Swainson has named the species with feathered tarsi, PTILINOPUS; as

Purple-crowned Pigeon. C. Purpurata. Tem. Col. 34.

Forehead, purple; head, neck, and under parts, pale-green; above, deep-green; vent, yellow; quills, black. Otaheite.

There are some, indeed, which have caruncles and other naked parts on the head.

Col. Auricularis. Tem. Pig. t. 21.

White; nostrils, globose; orbit and neck, naked, blue; gular caruncles, blood-red; primaries and tail, black.

Certain species with a pointed tail may also, if it is desired, be separated from the rest.

Passenger Pigeon. Lath. *Col. Migratoria.* Enl. 176, Frisch. 142. Tem. 48, 9.

Body, ash; nape, golden-purplish-green; wing-coverts, with oval spots; chest, rufous; belly, white. Female,

Purple-breasted Pigeon, Lath.

Brown Pigeon, Lath. *Col. Brunnea,* Tem. *Col. Oceanica,* Lesson, Voy. 41. *Col. Fasciata,* Say. *Col. Zenoida,* Ch. Bon.

Surinam Turtle, Lath. *C. Picturata.*

grey-brown; beneath, whitish; chest, yellowish-white. North America.

C. Carolinensis. Ib. 175. Tem. 50. Catesb. 2—4. Edw. 15.

Red-ash; beneath, white-ash; wings, black spotted; tail, ash, with a black band, and white tips. Male, chest, banded, golden-violet, and golden ear spot. North America. Also *C. Marginata,* Lath.

C. Reinvartii. Tem. Col. 248.

Head, neck, and abdomen, pale-ash; face, throat, and breast, white; back wing-coverts, large wing-coverts, and four middle tail-feathers, canella-purple; quills, small wing-coverts, black; side tail-feather, black, ash banded. Isle of Celebes. Length, nineteen inches.

C. Humeralis. Pl. Col. 191.

Head and breast, slate-coloured; above, deep-brown; beneath, whitish; across the nape, a yellow-red collar, marked with lunule dark bars; middle tail-feathers, brown, the lateral, vinous, tipt with white.

C. Amboinensis. Lath. Col. 100.

Head, neck, chest, and lower parts, red-bay; throat, whitish; nape, violet-purple; back, wings, rump, and top of tail, red-brown. Length, fourteen inches. Island of the Sound. The *C. Phasianella.* Tem.

C. Lophotes. Pl. 2. Col. 142.

Head, neck, and beneath, grey-ash; occipital crest of

long slender feathers, feathers of back wing-coverts, ash, reddish-tipped; large wing-coverts, brilliant-green; secondaries, purplish, white edged; side of tail, violet-black, white tipped.

C. Venusta. Pl. Col. 100. 341. or *Col. Strepitans.* Spix, 75—81.

Ashy; beneath and forehead, white tipped; head, lead-colour; chest, fulvous; quills, black; wing-coverts, white tipped; humerus, with a purple band; tail, longish; three outer quills, white; rest, ashy. Brazils.

St. Domingo Pigeon. Lath. *C. Dominicensis.* Lath. Ib. 487. Tem. 51.

Body, grey; head, beneath, white; crown spot, band under eye, and collar, black; chest, vinaceous; vent, white; tail, grey; outermost feather, white. St. Domingo. Length, eleven inches.

Cape Pigeon. Lath. *Col. Capensis.* Lath. Ib. 140. Vaill. 273, 4. Tem. 53, 4.

Body, grey-brown; beneath, white; inner edge of primaries, rufous; tail-feather, very long; beneath, black; both ends, white. Male, forehead and throat, black; wing, with shining steel-colour spots.

C. Maugei. Tem. 52.

Forehead and throat blackish; neck, chest, and hypochondria, black and white waved; tail, middle, brown; rest, black; white tipped. South Sea Islands. Length, ten inches.

C. Macquaria. Quoy. and Gam. Voy. de Freyc. t. 31.

Tail, long; head, chest, and rump, ash-blue; orbits,

naked, yellowish; wings, with white moons. New South Wales.*

But the best division made among the Pigeons is that of

VINAGO.† Cuv.

Which are to be known by their thicker bill, of solid substance, and laterally compressed; their tarsi are short, their feet large, and with a considerable border. They live entirely on fruits, and in large woods. Only a few species are known, all proper to the torrid zone of the old world.

Waaba Pigeon. Lath. *C. Abyssinica, Wallia* of Bruce. Vaill. 276, 7. Tem. 8, 9.

Green; head and neck, ash; belly, yellow; smaller wing-coverts, violet; quills and secondaries, black, yellow edged; tail, ash. Female, belly, green; quills, all greenish. Africa. Length, twelve inches.

Madagascar Pigeon. Lath. *Col. Australis.* Lath. Enl. 3. Tem. 3.

Green; vent and thighs, spotted; tail, grey; end, paler; bent of wing, violet; quill, black; secondaries, yellow tipped; feet, feathered. Madagascar.

* *Black-winged Pigeon,* Lath. *Columba Melanoptera,* Lath. *C. Syl, vestris,* Vieil.

Head, neck, and wing-bend, violet-red; occiput, shining golden-violet; back and lower parts, reddish-blue; wing and tail, blackish; tail-feather-white tipped.

† The Latin name of the Biset Pigeon. M. Vieillot has changed it into TRERON.

Aromatic Pigeon. Lath. *C. Aromatica.* Enl. 165. Tem. 57. Brown. Ill. 20.

Olive-green; humerus and small wing-coverts, purplish; quills, black; secondaries, yellow, edged at the tip; middle tail-feather, green; side ones, ash. India, Java. Length, nine and a half inches.

Parrot Pigeon. Lath. *C. Vernans.* Enl. 138. Tem. 10, 11.

Green; chest, with a violet and yellow lunule band; wing-coverts, yellow tipped; quills, black; tail, ash, whitish tipped. Female, greyish-green; beneath, yellowish-green. Java and Banda.

Saint Thomas Pigeon. Lath. *C. Militaris.* Tem. t. 1, 2.

Green; head, grey; neck and chest, yellow; nape, with a blue-ash band; bent of wing, violet; belly, greenish-ash. India. Length, twelve inches.

The *C. Sanctæ Thomæ.* Lath.

C. Psittacea. Tem. 4.

Green; vent, brown; tail, two middle feathers, green; rest, ash, white tipped, with black band; quills and secondaries, black, yellow tipped. Java and Timor.

C. Calva. Tem. 7.

Green; forehead and orbits, naked, yellow; bent of wing, violet; quills, black; secondaries, yellow edged; tail, middle, green; sides, ash. Africa. Length, eleven inches.

C. Olax. Tem. Col. 241.

Head and nape, ash; back, marron; breast, yellow;

Generic Characters of Birds.

ORDER GALLINA.

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1. Pinetope.
2. Crax. alector.
3. Rhamus.
4. Colins.
5. Crax. ptotivera.
6. Turnix.
7. Odontophorus. rufus.
8. Opisthocomus.
9. Vinago.
10. Columba.

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belly, deep-green; quills, black, tipped with yellow; legs, red. Sumatra.

C. Capellei. Col. 143.

Face, light-ash; top of head, throat, nape, back, and belly, deep-green, waved with blue; quills, black, tipped with yellow; tail, black, tipped with ash; breast patch, obscure yellowish-red. Sumatra.

Some of these also have a pointed tail.

C. Oxyura. Tem. Col. 240.

Green; obscure bar across the breast, reddish; quills, black; tail-feather, black, tipped with ash; beneath, yellow. Java.*

* *Purple-shouldered Pigeon,* Lath. *Columba Phœnicoptera,* Lath. *C. Militaris,* var. Tem.

Olive; beneath, ash; head and neck, yellowish; smaller wing-coverts, purple: larger wing-coverts and secondaries, white and black banded, India.

This species is liable to several variations. The first, with a black band on the lateral tail-feathers, and yellow beak, is the *Hook-billed Pigeon, Columba Cuvirostra,* Lath. The second, with the cheek and throat, yellow, the *Pompador Pigeon,* or *C. Pompadora,* Lath. From Ceylon. The third, with the cheek and throat, yellow, and the back and wing-coverts green, the *Yellow-faced Pigeon,* Brown, Illust. t. 20. *C. Tannensis,* Lath. The fourth, with the head, neck, and chest, yellow; belly, ash: tail, greenish. See *Temm. Fig. t.* 6.

Also the *Col. Purpurea,* Lath.

SUPPLEMENT ON THE GALLINÆ.

The birds of this order inhabit almost all the warm countries of the old and new worlds. With the exception of the first family *(The Alectors)*, there are few of them which have the habit of perching. Although not exactly confined to any exclusive aliment, they most generally subsist on grains of various kinds: and in drinking, they elevate their heads in the air, for the purpose of swallowing the liquid. The pigeons, however, differ in this respect, for they plunge their bills into the water, and drink at a single draught. They are pulverating birds, that is, they are fond of rolling in, and covering themselves with dust—the principal motive for which appears to be the necessity of freeing themselves from the vermin which torment them. In the sexes there is a very considerable difference in the plumage, until the advance of age, when the female sometimes assumes the colours of the male, which are the most brilliant. The female, in the great majority of the species, is generally the smallest, and least powerful. In comparing the gallinæ to mammiferous animals, with reference to internal structure, we find them exhibit most analogy with the ruminantia. Like them, they have three successive stomachs. The food is collected in the first stomach or crop, which has but little labour to perform, the grain only commencing to be softened there. Digestion is begun in the second, which is glandulous, and finished in the third, which is extremely powerful, and is commonly called the gizzard. Redi, Magnoletti, and Reaumur, have made experiments on the digestive powers of these birds, which have been repeated and verified by Spallanzani. The researches

of the latter, have proved, that if trituration, to which alone Reaumur attributed all the mechanism of digestion, prepares the maceration of the aliments, the operation is completed by the action of the gastric juices, to which the small stones, swallowed by the gallinaceous birds, contribute in a very small, if indeed in any degree. The length of the intestinal canal increases the analogy of this order of birds with the mammalia, to which we have just compared them.

We have seen in the text, that the conformation of the sternum, &c. in the gallinæ, is calculated to deprive them of facility in flying; we find, accordingly, that they seldom or never have recourse to flight, until they have attempted in vain to escape, by running from the danger with which they may happen to have been menaced.

The gallinæ are, almost all of them, polygamous; and the desire of reproduction is more impetuous and more strongly marked in them, than in any other order of this class of animals. It amounts, at times, even to a pitch of frenzy, and the males often combat desperately for the possession of the females.

The Alectors, or great gallinaceous birds of America, without spurs, live in woods, and nestle on trees. But the other gallinæ nestle on the ground: and the male neither feeds the female, nor takes any share in the process of incubation.

The gallinæ, of all other species of birds, administer the most to the wants, the taste, and the enjoyments of man. The flesh of most of them constitutes a light, wholesome, and nutritious food, of considerable restorative powers in cases of illness, and most savoury and relishing to those who are in health. Their feathers are also employed for a variety of uses. The taming and rearing such races as the turkey, &c. entitle the persons who first performed the service to mankind, to no mean rank among the benefactors of our species.

These birds would appear to be naturally divided into *nudipedes*, and *plumipedes*, or naked footed, and feathered footed. In other respects their characters are not very prominent, for the purposes of generic separation. Linnæus, under the name of gallinæ, comprehended, besides the ostrich, the bustard and the dodo, which have since been separated from this order.

The term ALECTOR, signifying a cock, in Greek, has been applied, as we have seen, by our author, to designate the first family of the gallinaceous order. It is unnecessary to repeat the characters given in the text, to which no observations on the family in general, can be added, of any interest or importance; we shall therefore proceed at once to a consideration of the sub-divisions made by the Baron.

The first is that of the Hoccos, properly so called.

These birds inhabit America exclusively, and in the southern countries of that quarter of the globe hold the place of the turkeys, which are found only in North America. M. Temminck, who has favoured the world with a natural history of gallinaceous birds, has separated the hoccos, the pauxis, and the yacous, into three genera, to which he has assigned different characters. As this gentleman has made a most particular study of these birds, and of the gallinæ in general, we shall be more especially indebted to him for our observations on this subject. We shall first borrow a few of his remarks on the three genera of the Hoccos (*crax*), of the PAUXIS (*ourax*), and the YACOUS (*penelope*).

These three genera, which, whatever general analogies may exist between them, are yet essentially distinct, all inhabit the new world. They may be considered then as representatives of the pheasant genus, which is so much extended through the countries of the ancient continent. Many interesting details have been given concerning them by two travellers,

who had ample opportunities of observing many of their species, in the regions which they inhabit; we allude to M. Sonnini and Don Felix d'Azara.

The pauxis and hoccos, or curassows, live in great flocks in the immense forests of South America. They are not very wild, and their character is, generally speaking, gentle, tranquil, and confiding. Those, however, which frequent the environs of inhabited places, become shy and suspicious, in consequence of being continually exposed to the pursuits of the fowlers, and disturbed and frightened by the explosion of fire-arms. But what sufficiently proves that these birds are naturally mild and sociable, is that they are tamed with very great facility, and grow as familiar in a state of domestication as our common poultry. M. Temminck has observed them in many menageries in Holland, where they were scarcely less familiar than the turkey, the peacock, or the pintado. Their infecundity, in the domesticated state, is attributed by this writer to the want of sufficient care on the part of those who keep them; in fact, the most assiduous attention is necessary in bringing them up, to accustom them completely to our European climates. A proof of this was given in the magnificent menagerie of M. Ameshoff, whose care and attention to these birds was rewarded by the most complete success in their breeding. The *crax rubra*, *crax pauxi*, and others of this family of alector, produced under this gentleman's management, as numerously as our common domestic fowls, and his table was abundantly supplied by them. The flesh of the young is white, and of the most exquisite flavour, superior even to that of the pintado or the pheasant. It is somewhat singular, that the colonists of South America do not devote themselves to the rearing of the different species of these birds. According to the report of Sonnini, the people of Guiana had made no attempt of this nature, at the period in which he visited that country.

The beauty of these birds, and the excellence of their flesh, which is considerably improved by domestication, would render them most desirable objects, both on the score of utility and luxury.

The natural disposition of the hoccos, in particular, seems especially calculated for the domestic state. There is but little doubt, that by a proper degree of attention, most, if not all of the species, might be made as useful to man, as so many others of the gallinaceous race have already proved to be. The disposition of the hoccos, born and brought up in domestication, may more particularly be compared to the mild and peaceable nature of our cocks and hens. They are equally fond of being in the neighbourhood of man, and seem to discover a peculiar relish for his society. They do not betake themselves to solitary places of refuge, but make use of the nests which man provides for them, returning daily to lay their eggs, and hatch there in preference to any other situation.

These birds are polygamous, and many females are attached to a single male. Though of different species, a union is easily made to take place between them, and fertile individuals are thus produced, that unite with one another with equal facility. It is probable, that if this intercourse were repeated in a variety of ways, it would be possible to cultivate, by suitable care, many different races of these birds, whose descendants might be susceptible of multiplying, *ad infinitum*, and branching out into a number of singular varieties under the superintendance of man. In considering the species, we shall speak more particularly of these mongrel birds.

To derive advantage from the curassows, which it might be thought desirable to accustom to our European climates, it would be necessary, as M. Temminck remarks, to obtain such birds from the colonies as had been previously accustomed to the domesticated state, or rather such as have been born in

it; they will in a short time grow habituated to the climate, if some few particular cares be bestowed upon them at their first arrival. They should receive at first, food of a greater or less stimulating and warm nature, such as hempseed; and especially they should not be exposed at once to the colder temperature of our climate, but, on the contrary, habituated to it by degrees; it will be necessary to place them in a situation in which they may enjoy the earliest rays of the sun, and slightly to warm the place where they are shut up, during the first winter after their arrival. It should also be observed, that the tract allotted to them should be extensive, shaded upon one side, and very dry. When once accustomed to the climate, they are not delicate as to the choice of food, but will eat, indifferently, maize, small peas, buckwheat, rice, and bread. M. Temminck is, however, of opinion, that maize mixed with a little flaxseed is the most suitable food for them. They are also remarkably fond of nettles, which should therefore be occasionally given to them.

The disposition of the pauxis resembles that of the curassows; they are mild and peaceable birds, and by no means noisy; they will live on terms of the best intelligence with all the other species of gallinaceous birds, which is not at all the case with the pintados, or pea-fowl, to which this further additional objection exists, namely, that they are continually uttering the most discordant cries.

The gait of these birds is grave; they fly but seldom, and their flight is heavy, and ill sustained; but they run with wonderful celerity. They carry the tail in a pendant position, and almost at every step it makes a little movement, widening horizontally.

Their cry, according to Sonnini, may be very well represented by the syllables *po-hic;* another more sharp and sonorous sound, which they utter, proceeds, as M. Temminck thinks, from the exceeding length of the trachea and its different

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sinuosities. The curassow of Guiana, says Sonnini, and the same may be said of all the species of curassow and pauxi, also utters a sort of dull humming sound, which is not a cry, but a sort of concentrated sound, similar to that produced from a bass-viol; this sort of noise, which is also peculiar to the turkey, seems to be formed in the cavity of the abdomen, and to escape, externally, through the pores of the flesh and integuments,—so that we might almost pronounce these birds to be ventriloquists. The different sounds produced by the pauxis, the curassows, and by the species of penelope, are modified by the sinuosities which the tube of the trachea describes, and these sinuosities vary very sensibly in the different species. M. Temminck has dissected a number of these birds, so as by that means to satisfy himself of the disparities which exist between each species and the rest. Many of his observations in this way are new, and many of them go to verify what had been already ascertained on this subject by M. Bajon, in his account of Cayenne, and by Dr. Latham, in the Transactions of the Linnæan Society.

In these three genera of birds, peculiar to the southern portions of the new Continent, are found, in the tube of the trachea, sinuosities, of greater or less length. It is in this strongly marked character that this trachea differs from that of other gallinaceous birds; as in these last, the lower larynx of the genera of which we are speaking is destitute of the proper muscles, which act as *motores* to this part in many other genera of birds. The lower larynx and the bronchiæ of the pauxis, the curassows, and penelope, do not differ from those same parts in peacocks, cocks, and pheasants, but in the position of the rings, the distance of the membranes between each of these, and a small difference in the form of the transverse bones from which the bronchiæ depend.

In the *crax pauxi*, and in all the penelopes in which the form of the trachea has been observed, it has been found to

describe one or many circumvolutions, which are all directed on the muscles of the breast, between the integuments immediately under the skin. In the curassows alone, it has been observed, that these circumvolutions of the tube of the trachea take place at the lower part of the neck, or in the cavity of the thorax. This is pretty nearly the same arrangement as in the males of the genus *platalea*; but no species in any of these three genera, has been found, in which the circumvolutions of the tube of the trachea are found in the interior of the bone of the sternum, as is observed to be the case in the greater number of species which compose the genus *grus*, and in the wild swan (*cygnus flavirostris*).

A very erroneous opinion has been entertained by some naturalists, that the genera of which we are writing were turkeys or pheasants. This opinion needs no further refutation than the descriptions into which we have already entered. The external differences are sufficiently great; but those which exist in internal structure are still more strongly marked.

In casting a superficial glance over the birds which compose the genera pauxi and curassow, one might be tempted to consider them as belonging to one and the same genus. Accordingly, they have, by almost all systematists, been mistakenly classed together. In fact, the size and shape of these birds are very similar, their manners are the same, and the predominating colour of the plumage is the same in almost all the species. In fine, there is but little disparity in their habits, and their disposition is equally susceptible of bending to the yoke of domestication. A number of similar characters has prevented naturalists from bestowing their attention on the points of difference. These, it is true, have relation exclusively to different forms in the structure of the bill and nostrils; but in methodic classification, differences of this kind are of high importance: dissimilarities in the form of

the bill, in the position of the nostrils, and the mode of their aperture, in the construction of the feet, toes, and claws, are characters which must determine generic separation; we cannot hesitate, therefore, to assign a peculiar genus to each of the kinds of birds in question, no more than we can to separate both one and the other from penelope.

The pauxis and curassows are stout birds, of the size of the turkey and the peacock. Their wings are very short in proportion to the volume of the body; the four external quills are the shortest, and are equally graduated; the fifth and sixth are the longest. The tail is long, and composed of twelve strong and broad quills. The legs are long and robust; the toes are long, three before and one behind; the front toes are united by a membrane, which extends as far as the first articulation; the hind toe is articulated lower down on the tarsus than in the other genera of gallinæ, but it is not situated on a level with the other toes, as it is in the pigeons.

The pauxis have the bill short, strong, and compressed; on the upper mandible arises a prolongation of the same corneous substance as the mandible itself, and forming one piece with it. The nostrils are basal, lateral, and pierced perpendicularly near the forehead behind the corneous prolongation, half closed above, and open underneath.

In the curassows, the bill is of moderate length, compressed, and more high at its base than broad. The upper mandible is elevated, curved from its origin, and vaulted; the base of the bill is covered with a cere; on the head is a tuft of waving and frizzled feathers; the nostrils are lateral, pierced longitudinally in the cere, half covered at top, and open before.

Many characters, which have now been indicated in the manners and forms of the pauxis and curassows, will equally apply to the genus PENELOPE. The birds of this genus,

however, possess peculiar characters which serve to distinguish them from the others.

As much as the pauxis and curassows seek the society of their consimilars, so much do the penelopes avoid that of theirs. They are rarely found united in bands; the male and female join company towards the season of reproduction; but as soon as the young can fly, they quit the society of their parents, and conceal themselves in the woods. They are more uneasy and more noisy birds than the curassows, and, for the most part, possess a more powerful voice. Among the pauxis, *crax pauxi* possesses the most sonorous voice; while in the genus penelope, the *whistler* has the most feeble; of such differences we shall speak more anon. Bajon informs us that the curassows have but one brood in the year, while the penelopes have two.

The latter are nearly of the size of the pintado and of the pheasant. They have, like the pauxis and the curassows, the tail long, slightly graduated, and rounded; the quills, twelve in number; the four external quills of each wing are the shortest, and equally graduated; the fifth quill, though proportionally much longer than the first four, is yet one line shorter than the sixth, which is the longest of all; the feet are provided with four toes, three before, and one behind; The last is articulated almost on a level with the front toes, which are united by a membrane as far as the first articulation. The bill is moderate, more broad than high, and less curved than that of the curassows. The upper mandible is depressed, and does not commence to be curved until near its extremity; the base of the bill, the region of the eyes, and the sides of the head are naked. In many species a fleshy appendage is remarked, which hangs on the middle of the throat; this skin is double, as in the turkey; the nostrils are lateral, of an oval form, placed in the cere, about the middle

of the mandible, half-closed by a membrane, and open before.

The pauxis, curassows, and penelopes construct their nests on trees, and the female deposits many eggs there. Sonnini says that the number of these varies from two to five, according to the age of the females; but D'Azara extends this number to eight. It is quite certain that when domesticated and accustomed to the climate, these birds lay eggs in as great abundance as our peacocks, turkeys, and pintados. The young ones run about immediately on quitting the egg, and eat directly, like chickens. The females gather the young under their wings to protect them from the cold, and they have at such times a peculiar note of appeal. These are facts well authenticated; but they do not much accord with the habit above-mentioned of constructing their nests on trees when in the wild state. On this last supposition the questions may be put—in what manner do the parents feed their offspring? and at what epoch do the young ones quit the nest and provide for their own subsistence? M. Temminck is inclined to think that the curassows and penelopes carry their young ones, soon after they are born, to the ground, and that they employ the same mode of doing this as the wild ducks do when they happen to place their nest on a tree near a pond or a lake, a habit which is peculiar to many species of America. They descend with their young from the summit of the highest trees, taking them one by one with the bill. It is usually the male that performs this operation, while the female assembles her brood around her, in proportion as the male brings them down. M. Vieillot relates a story in strong confirmation of this fact. Being engaged in the chase in the woods of America, he roused a small wood-hen (*Scolopax Minor*), surrounded by her young ones, which could not fly. On going a little aside, this gen-

tleman beheld the wood-hen carry off all her little ones, seizing each in the bill.

Such embarrassing points as these are only to be resolved by naturalists who travel in pursuit of knowledge; but, unfortunately, too many of these do not bestow the necessary attention which the study of the manners, and an acquaintance with the habits of the species which they have an opportunity of examining, require. This is the source of our imperfect ideas concerning the habits of many animals. Our travellers in general are too ambitious of diversifying their observations, and of extending them to all possible subjects. Thus they neglect that attention and minuteness of research which each particular department of inquiry demands, if it is to be at all cultivated with any real advantage to the progress of science.

M. Temminck observes, that naturalists should not decide too hastily on the apparent identity of the species which compose the genus penelope. He says, that he has himself been frequently deceived in this way, before he was enabled to detect with certainty the characters of species which differ but immaterially in the colours of their plumage, and among which the characters which depend upon external forms are but little apparent. This gentleman likewise remarks, with great judgment, that it is equally necessary to be cautious, especially with reference to the curassows, before comparisons are established, or disparities determined in these species. It is requisite to be assured whether the individuals concerning which such points are to be decided, are originally of the wild state, or have been produced in domestication.

The great number of individuals born in the menageries of Holland have successively passed into public collections, and into those of amateurs. These individuals, particularly those of the three species of *Crax Alector*, *Globicera*, and

Rubra (Tem.) are very frequently the mixed production of these three species; for in the Dutch menageries, the male of one of these species has been repeatedly employed to reproduce with the females of another.

We shall now briefly notice what is interesting in the species of these three genera, beginning with the curassows.

The *Crax Alector* has been the species of this genus most frequently brought into Europe, and the one whose spoils have been by far the most numerous in public and private collections. It has been considered by some naturalists, who would not admit more than one species in this genus, as the type of all those varieties which have been enumerated. Some authors have even supposed that the varieties in question were only those of sex. The *Pauxi Mitu*, for example, has stood in the list of the varieties of the male; and the *Coxolitli* (*Crax Rubra*) in those of the female of *Crax Alector*.

Many living individuals of this species have been brought into Holland, and formerly reproduced there in many menageries, particularly in that of M. Ameshoff, already mentioned. That amateur succeeded in rendering this species and that of *Crax Pauxi*, as productive as his turkeys and peacocks. When M. Temminck, however, wrote his natural history of the gallinæ, no more of these birds existed in his native country. The loss of such useful birds, as a resource both of subsistence and of luxury, is attributed by this naturalist to the devastating spirit of the revolution, which was the fruitful parent of so many other evils.

The greatest number of these curassows thus imported into Holland came from Dutch Guiana. These individuals, whose spoils may now be seen in many modern collections of natural history, do not differ from those sent from the French colonies, nor from those of Brazil. We are assured by travellers that the species is equally extended in Mexico, where it is designated by the name of *Tepetotl*. In Brazil it

bears the name of *Mutao Pinime*; and, according to M. D'Azara, that of *Mitu* in Paraguay.

M. Temminck also points out as synonyms of *Crax Alector*, the *Mitouporanga* of Margrave, the *Crax Guianensis* of Brisson, the *Poes* of Frisch, the *Coq Indien* of the Memoirs of the Academy of Sciences, and the *Peacock Pheasant* of Bancroft.

M. Sonnini, in the new edition of Buffon, has published some interesting details concerning this bird. That naturalist possessed ample opportunities of seeing it in its wild state in French Guiana, and we shall freely avail ourselves of his observations.

The *Crested Curassow* of Guiana, says this writer, adds to a simple but elegant dress, mild and social manners. Its flesh presents an aliment equally wholesome and savoury, which proves an abundant and easy resource for the tables of the colonists of South America, and especially for the subsistence of travellers who penetrate into the immense forests of this quarter of the globe. These good qualities render its history of sufficient interest to attempt to make it better known than it has hitherto been. Not but that it has been mentioned by ornithologists; but in copying successively from each other, they have added nothing to the indications of earlier writers: for we cannot reckon as any thing those arbitrary denominations, those phrases, which have nothing scientific, and which have served rather to retrograde the science of nature, than to accelerate its progress.

The race of the *Crested Curassow* is permanent; and though very numerous in French Guiana, it is the same in all the individuals. This species inhabits, in numerous flocks, the immense forests with which this country is almost entirely overshadowed. But these birds have nothing wild or savage about them but their dwelling: mildness and tranquillity constitute their character: and they seem neither to fear, nor

even to be acquainted with danger; careless, to all appearrance, of the preservation of their existence, they do not fly from the occasions of losing it. The naturalist from whom this account is derived, has often found himself in the midst of considerable flocks of these peaceable birds, which his presence did not appear in the least to intimidate. This carelessness on their part affords the greatest facility to their destruction; numbers of them may be killed even with firearms, without any endeavour on their side to escape, otherwise than by flying from one tree to another.

Such is the character of these birds in those mighty solitudes, where, having nothing to dread, they must naturally be without suspicion. But with the small number which are found in the neighbourhood of human habitations, the case is very different: they become wild and distrustful; any thing disturbs and inquiets them; the least noise makes them betake themselves to flight. This continual agitation, and the frequent necessity of a prompt retreat, will not permit them to assemble in great numbers, and, accordingly, no more than two or three are ever seen together.

D'Azara says, that in Paraguay these curassows are never seen but in pairs, which is probably occasioned by the frequent attacks to which they are subjected in the environs of inhabited places.

In the same manner as almost all the birds which inhabit these southern countries, the curassows have no particularly fixed time for breeding; it is however rather in the rainy season, which lasts from seven to eight months in Guiana, than during the dry season, that they employ themselves in the propagation of their species. They have commonly but a single brood in the year. They show little art or industry in the construction of their nests, place them on some dry branches, in which they interweave in a rude manner some blades of grass, and furnish the bottom with leaves. Here

the females deposit some white eggs, pretty nearly of the same size and form as those of the turkey-hen, but the shell is thicker. The number of these eggs vary in proportion to the age of the females, who never lay less than two, or more than six.

The Mexicans call these birds *Tepetototl*, which means mountain-bird. The Spaniards know them under the name of *De Pabos de Monte* (turkeys of the mountain); and this is the denomination given by the latter in general to all the curassows, and all the yacous (penelope). This curassow generally sojourns on the mountains, but always in thick woods. It perches on the most elevated trees, but often seeks on the ground the wild fruits which constitute its subsistence. The fruits which it most readily eats are, according to Aublet, those of the *thoa*, which it swallows entire.

Although Sonnini suspects some exaggeration in what Fernandez and Nieremberg report concerning the extraordinary familiarity of some curassows, it is not less true that there is perhaps no bird that exhibits more disposition to become tame. Sonnini himself relates that they are seen running tamely and familiarly through the streets of Cayenne. Nothing frightens them; they enter into all the houses, and jump on the tables to receive food. Though they hatch at liberty wherever they please, through the town and outside of it, they know perfectly well the house in which they are brought up. In consequence of their taste for elevated situations, they perch, for the purpose of passing the night, on the highest roof in the neighbourhood. As to the rest, they are not delicate in the choice of food, for almost every thing suits and agrees with them. They eat equally maize, rice, bread, cassava, bananas, potatoes, and all sorts of fruits. Flocks of them can be easily brought up.

The peaceable and mild manners of the *Crested Curassow*

demand nothing but gradations skilfully managed to ensure it to our climate altogether, and to render its descendants here as vigorous and as fruitful as those of the peacock and the turkey. That this has been done in Holland has appeared already; and we have the personal testimony of M. Temminck for the fact, who has seen in his childhood a multitude of these birds produced and reared in the fine menagerie of M. Ameshoff, and living on the best terms with all the other fowls of the poultry-yard. It is probable that the races of these birds would still exist, "if," says the gentleman last cited, "the proprietors of these vast menageries had had the public good for their object in such establishments; but it is to be regretted, that most of them considered nothing but private enjoyment or emolument, accompanied by the vicious desire of concealing from the curious those productions of nature, the profit and pleasure arising from which they would regret to see directed to the advantage of the public." M. Temminck makes a similar complaint respecting the scientific collections of his country,—a complaint, unhappily, not entirely destitute of foundation, in other parts of the world as well as Holland.

Into the external description of the *Crested Curassow*, or *Mitouporanga*, our plan does not permit us to enter; but we may remark, that though the length of the adult bird is about two feet eight inches, yet, before the first moulting, its total length is but two inches. The plumes of the head are then straight, and not contoured and frizzled. The sides of the head and the base of the bill are without feathers. The tuft is radiated alternately with white and black. The female of this species does not differ from the male, except in having shorter feathers in the tuft, and the tail being a little shorter.

From the union of the *Crax Alector* with *Crax Rubra*, those individuals who partake most of the former species

have the black predominant in their plumage, and the temples naked, as well as the base of the bill. In general it may be remarked, that the bastard races, and the young of these two species, and also of *Crax Globicera*, have their plumage more varied, and far more agreeable to the eye than the uniform livery of the adult individuals of the pure race.

Of the curious formation of the trachea we must be permitted to say a few words. The entire tube has a flatted form, more membranous than cartilaginous; the rings are entire, and very distant one from the other. From the glottis, as far as the place where the second curve takes place, the rings are nearly cylindrical; there they become double the size, and very much flatted. This tube describes a broad curvature between the bones of the furca—goes back in this form the length of two inches over the muscles of the neck—makes there a second circumvolution—after which the rings, though broader than those of the upper part of the trachea, resume an equal form. From thence the tube of the trachea, compressed at the sides, preserves this form as far as the lower larynx, where it is suddenly dilated. The lower larynx is formed by a single membranous piece, supported by a broad ring, from which the bronchiæ depend. In the bottom of the glottis is a triangular and very prominent socle or foot-base. This glottis is not supported by the tail of the hyoïd bone, but it holds to the tongue by the membranaceous tissue of the œsophagus, as in the genera of the cock and the pheasant.

The eggs of the *Mitouporanga*, or *Crested Curassow*, are about the size of those of the turkey, and are of a pure white, like those of the hen.

This species of Hocco inhabits Guiana, Mexico, Brazil, and Paraguay. Some are also found in the island of Porto-Rico.

We shall now make a few remarks on the next species in Cuvier's text, the *Globose Curassow*, (*Crax Globicera*,) called *Teucholi* by the Mexicans.

In our observations on the genera, or rather subgenera of the family of the *Alectors*, we have seen a considerable difference in the essential characters of the Hoccos and the Pauxi. We have also remarked the docile disposition of the former, which so much inclines them to domestication. This has occasioned very marked alterations in the colours of their plumage, especially when they were under the superintendence of man, and their production regulated by his caprices. The plumage has in that case assumed intermediate colours, in consequence of the necessity to which many breeders have found themselves reduced of coupling different species, not being able to procure two individuals, male or female, of one and the same species. Of the individuals which sprung from these illegitimate alliances, a considerable number proved unfruitful; others have been fecundated but once, and never produced afterwards. The fewer number have sometimes produced individuals resembling the mother; but more frequently their offspring was decorated with a new plumage, partaking at once of the livery of both species.

These instances of occasional fecundity in the Hoccos, sprung from illegitimate unions, are by no means exclusively confined to this genus of birds. The gallinaceous order supplies us in its other genera with similar examples. The same production is found by experience to take place in the different species of pheasants. It is more than probable that many singular races of our cocks and hens, which are propagated at present in greater or less abundance, owe their origin to similar causes. Varieties so marked in the character and colour of the plumage in our domestic races, are no longer attributed by philosophers to climate, locality, or mere accidental causes. It is no longer believed that a few original species, whose descendants have spread themselves over the earth from the equator to the poles, could have produced those strongly characterized dissimilarities which we constantly observe in individuals of the same species. This

erroneous idea respecting the omnipotent influence of climate, is dispelled by the light of comparative anatomy, and the hourly progress of scientific discovery and research. Whatever be the cause, nature exhibits a perpetual tendency to the production and reproduction of individual varieties; and that under all circumstances of climate and locality, but more especially in domesticated animals.

From all this, and more especially from what we have instanced respecting the breeding of the Hoccos, we shall find that naturalists, founding their observations on individuals born in the domesticated state, have transmitted to us descriptions of no great accuracy respecting these birds. The majority of those specimens found in collections of natural history proceeded from the menageries of Holland and of this country. There the individuals underwent considerable alterations in the colours of the plumage, in consequence of those illegitimate unions to which we have alluded; it is therefore not surprising that the Hoccos have been so badly described by authors, and that their species have been so often confounded.

The *Teucholi*, or *Globose Curassow*, is a regular species, both male and female of which are distinguished by a callous, globular tubercle, of the bulk of a large nut. This tubercle is situated at the base of the hill, towards the forehead. It is covered, as well as the base of the two mandibles, by a cere, of a lively yellow; immediately around the eye is a small black space, divested of feathers. This space is separated from the cere by feathers.

Buffon has confounded the *Teucholi* with the *Mitouporanga*, the last described species. Though decidedly distinct, they do certainly appear, on a superficial consideration, to be nearly allied; but the characters already noticed form a sufficient distinction. To them we shall merely add, that the nostrils are pierced in front of and below the tubercle in the

yellow cere which covers the base of the bill. The total measure of the bird is three feet, the bill is one inch and ten lines, and the tarsus four inches and three lines. For colours, see text.

The young have but a very small protuberance, where the globular tubercle is destined to be formed.

An individual of this species has been coupled with female mules of the *Crax Rubra* (Red Curassow). From this alliance were produced two young ones, black, slightly tinted with brown, having a tuft radiated with black and white. The abdomen was reddish; the tail black, terminated with white. All the rest of the plumage was divided by fine transverse bands of white. The base of the bill was without a tubercle, and the temples were garnished with feathers.

The *Red Curassow* (*Crax Rubra*) has been mistaken by naturalists in consequence of observations made on mules of the *Mitouporanga*. This species, however, which is called *Coxolitli* by the native Indians, is as clearly distinct as the last two. Its individuals, in a state of freedom, reproduce the same colours in their plumage, and constantly exhibit the same disparities, which distinguish them from the crested and the globose curassows.

The differences of colour will be observed in the text. The *Red Curassow* differs from the globose in the absence of the globular tubercle, and from the *Crested* or *Mitouporanga*, in having the region of the eyes furnished with feathers. It is not improbable also that it differs from both respecting the sinuosities of the trachea, though that subject does not appear to have been yet sufficiently investigated. In two females dissected by M. Temminck, the conduit did not form any turns; it went in a direct line into the cavity of the thorax. The rings of the trachea were entire, and very distant one from the other, as in the *Crax Pauxi*.

The flesh of the *Red Curassow* is white, very succulent,

C. Hamilton Smith Esq.t del.

Griffiths sc.

Bullock Mus.

BLUE CURASSOW. *Lath? Var.*

CRAX CYANEUS.

London Published by G.B. Whittaker, May. 1820.

and of an exquisite flavour. The same indeed may be averred of all the members of the family of ALECTOR.

These three being the best authenticated, and best known species of Hocco, we pass over the others, and proceed to those of PAUXI. It is necessary, however, first, that we should insert the description of the *Blue Curassow*, though, as we have already mentioned, it appears to belong to another genus. It is the size of a female turkey. The bill is considerably elevated, and rounded above. The general colour of the plumage is fine blue. The feathers of the crown are long, and form a crest, inclining backwards. From breast to thighs is greenish yellow. The abdomen, vent, and thighs, are deep ferruginous. The tail is long, and rounded at the end. It inhabits Sierra Leona.

The *Crax Pauxi*, called by the French *Pierre* or *Pauxi à Pierre*, is not, as Buffon would have it, a stupid bird. If its manners be mild and familiar when it is reduced to domestication, it possesses in its wild state all the necessary faculties to withdraw itself from the pursuit of the hunters. It is possible that in those places where man does not habitually tread, that the pauxis, like the hoccos, suffer themselves to be shot easily; but in the neighbourhood of habitations they have become as wild, as distrustful, and as rare, as all the other birds of these countries. This Pauxi, like all the rest of its tribe, submits itself readily to domestication. It will follow and caress its master, and has much more grace and lightness in its movements than the turkey. It can be reared as all the rest of the family can, like the fowls of the poultry-yard, and its maladies are similar and similarly treated.

According to the testimony of Aublet and Fernandez, the *Crax Pauxi* nestles on the ground like the pheasants, leads about its young, and recalls them in a similar strain. The young at first live on insects, and then, when they grow large, on fruits, grains, and in fact on every thing on which poultry can be fed. In a state of domestication, and when she has

become well accustomed to the climate, the female brings up her little ones extremely well; but it often occurs that the greatest quantity of the eggs are clear, which proceeds from not giving to these birds sufficient liberty. By fastening their wings, and leaving them a large space, shaded on one side, the broods will thrive extremely well. The eggs are white, and of the size of those of the turkey. The hen turkey may be employed both to hatch these eggs, and educate the young, as the time of incubation is the same with both birds. The little ones are covered with a brown down, and the globe which should surmount the head is not apparent at this early age. After the first moulting it shows itself by a small tubercle, which increases in proportion as the bird advances in age. The male and female are alike provided with this appendage, but it is somewhat smaller in the latter.

The total length of the *Crax Pauxi* (male,) is two feet ten inches; in size and bulk, it altogether equals the domestic turkey. The bill is short and greatly curved, and its length from the feathered part where the nostrils are situated, is about an inch. The globe which surmounts it adheres to the base of the upper mandible. This globe or stone, from which the bird is named in French, is, in adult individuals, of an osseous substance, and covered with grooves, which resemble ramifications. In the interior, which is empty, are found small cells, which the bird has apparently the faculty of filling with air, by means of an aperture which corresponds with the interior of the bill. In the young, this stone has a rounded form, but in old males it is like a pear reversed, and is two inches and a half in height.

Besides the very powerful cry of *po-hic*, which this bird utters, it also sends forth the dull humming sound which we have noticed when discoursing of the genus. The voices both of male and female are alike, exceedingly sonorous, and heard at a great distance. In the male, the trachea, having

followed the œsophagus as far as the aperture of the thorax, mounts over the right great pectoral muscle at some distance from the crest of the sternum, continues its direction over the entire length of this muscle, forms a curve there in passing to the distance of two lines behind the sternum over the tunic which retains the entrails; it then proceeds the length of two inches and a quarter over the left pectoral muscle, there makes a turn on the side of the sternum, passes anew behind this bone above the first curve, then turns anew, follows its direction over the right pectoral on the side of the crest of the sternum, and passes over the right clavicle into the cavity of the thorax. On each side of the trachea is a muscle which serves to lengthen or shorten it. The tube adheres in its entire length to the pectoral muscles by a very fine cellular tissue, and is immediately covered by the skin. The lower and upper larynx do not differ from the same parts in the peacock, but a very apparent socle is found at the bottom of the upper larynx, at the aperture of the glottis. The tube of the trachea is composed of slender rings, distant from each other about two lines; the space between each ring is membranous.

We are assured that the female of *Crax Pauxi* has the trachea conformed precisely in the same manner as the male.

This bird in its wild state is a native of Mexico. The greatest number of individuals imported into Holland, came from the colony of Curassow.

The *Ourax Mitu*, *Pauxi Mitu*, Tem. has been repeatedly confounded with the *Hocco Mitouporanga*, or *Crax Alector* It bears, however, all the marks of belonging to the present genus. It has the corneous elevation on the base of the bill, forming one and the same piece with the upper mandible, Its nostrils are placed at the base of the upper mandible behind this protuberance, and are partly covered by a membrane furnished with small feathers. In fine, it possesses all the characters of a genuine PAUXI.

This bird is much more rare in collections of natural history than the preceding one, and was equally so in the menageries of Holland. The only living individual ever seen there, according to M. Temminck, was in the menagerie of M. Backer, near the Hague, where it lived many years.

The *Mitu* is not so large as *Crax Pauxi ;* its total length is but two feet five inches; the tarsus is three inches eight lines; the crest of the upper mandible in this species rises above the cranium, is formed in front in a trenchant ridge, and widens at its base. On the forehead, at the insertion of the corneous globe of the bill, is a tuft of straight feathers, which the bird has the faculty of erecting. The bill is of a brilliant red.

The young have the bill less red, and the elevation of the crest of the upper mandible is less great. This species is a native of Brazil.

We shall dismiss the family of *Alector* with a few remarks on the species of PENELOPE, or the YACOUS, or GUANS, beginning with *Penelope Cristata.*

It is to be observed, that though the disposition of these birds is not less mild and peaceable than that of the *Hoccos*, so many experiments have not yet been tried upon them, in the way of domestication, as on the former. Though possessing the greatest possible relation in disposition and manner, they have not as yet obtained the same regular and continuous attention under the hands of man. Notwithstanding this, it would be possible, by taking proper measures, to transplant these useful birds into Europe, and rural economy would find in them, as in the last two genera, important resources, and new means of prosperity.

The Pauxis and the Hoccos having been more frequently introduced into Holland, more numerous experiments were made to subject them to a domesticated state. These attempts, as we have seen, were crowned with the most complete success. Some species of Penelope have also been

brought up in the Dutch menageries, and they have reproduced, when proper care has been taken in sorting the species; but it does not appear that the attempt to produce hybrids from them was successful, as it was in the case of the Hoccos; perhaps the productions of this kind were only not so numerous.

The *Penelope Cristata* has been the most frequently brought into Holland of any of the species. Many years ago it bred in a menagerie near Utrecht. All the individuals born there resembled the father and mother. Many of them were in the possession of M. Temminck.

This Guan was for a long time confounded with the Marail Turkey. The first who described it well was Brisson, who also called it *Dindon du Brésil.* Our popular names, thus indefinitely applied to foreign animals, are, it must be confessed, extremely confusing. The name, for example, of one species, applied to another of a genus totally different, nay, not unfrequently to one of a different order, is highly calculated to create mistaken notions, and mislead a reader concerning the character and conformation of an animal. Scientific names, were they always judiciously chosen, and had they not unfortunately been multiplied into a host of synonymes, would do much better; at all events, they do better than the application of our popular names to foreign species, qualified or unqualified by epithets. If they are not understood—which, in nine cases out of ten, we believe to be the case by the generality of readers—the worst harm they can do is to burthen the memory with what is unintelligible, and certainly

> ———Less dang'rous is th' offence,
> To tire our patience than mislead our sense."

But when we have a foreign name for a distinct species,

the use of it is decidedly preferable. Now the natives of Brazil give the name of *Guan* to the Penelope, which forms our present subject. It has been preferred by M. Temminck to that of *Yacou*, given by Buffon, because he finds two distinct species confounded under the latter denomination. That described by Buffon must be referred to the Guan of Edwards, and to the *Penelope Cristata* of Latham. The other, which is the Yacou of Bajon, is the same bird as the *Penelope Cumanensis* and *Pipile*. The addition of Sonnini to the article of Yacou of Buffon is partly referable to our present Guan, and partly to Penelope Pipile. A second reason which made M. Temminck suppress the Yacou, was, that all the known Penelopes among the Indians of America bear the names of *Jac*, *Jacu*, *Jacuhu*, or *Yacuhu*.

This Guan is the largest of all the known Penelopes, measuring in total from twenty to thirty inches; the throat is naked, and from it hangs a flowing membrane, of a fine red colour. This membrane, extremely ductile, is elongated or contracted, according as the bird is agitated or not. As it forms but a single piece with the naked skin of the throat, and is double as large as the turkey's, the bird can withdraw it entirely. The feet are red.

The female scarcely appears to differ from the male except in the reflexions of the plumage, the shades of which are more tinted with reddish. The feathers of the crest, those of the neck and mantle, are also bordered with white.

The chick has no nudity on the temples, nor at the throat. The head and sides of the neck are covered with a reddish down; from the occiput and all the length of the hinder part of the neck, is a broad stripe of marron down; two more marron stripes accompany it on each side.

M. Temminck found in three male individuals of this species that the tube of the trachea, after having accompanied the œsophagus as far as the clavicles, mounts over the right

pectoral muscle, advances there only the length of two inches, makes a curve to the left, and repassing over this same right muscle the length of the crest of the sternum, follows its direction towards the lungs. The rings of the trachea are alternate, and have in their interstices tolerably broad membranes. Towards the upper larynx the trachea widens like a funnel. At the bottom of the glottis is a very prominent socle. The hinder part of the tongue and the edges of the glottis are furnished with sharp asperities. The upper larynx is supported by the extremity or tail of the hyoïd bone, and thereby attached to the tongue, as in the pauxis, the turkeys, and the peacocks; while in the hoccos, the cocks, and the pheasants, the tail or extremity of the hyoïd bone does not support the upper larynx, which is attached in the membranous tissue of the œsophagus, and thereby capable of being lowered or contracted, according to the tone which the animal is desirous of producing. The sinuosity which the tube of the trachea describes over the muscle of the breast is fixed there by a membranous and cellular tissue, as in the *Crax Pauxi*, and in all the rest of the Penelopes.

This Guan inhabits Brazil and Guiana.

The *Penelope Cumanensis* and *Pipile* of Latham are united under one name by M. Temminck, *Penelope Siffleur*, which we may translate *Whistling Guan*, but which is the *Piping Curassow* of Latham and the text. To this M. Temminck adds the *Yacou* of Bajon, and the *Yacou Apeti* of D'Azara. All these different names have relation to this one species, which is distinguished from its congeners by external characters, very easy of recognition. Its general colours will be found in the text. We shall here add a few important particulars. The crest is white; the naked part in front of the neck is less considerable than in the preceding species, and it has a great number of small feathers pretty close, in the interstices of which the red skin is visible. A small pro-

minent membrane there, of azure blue, is covered with black hairs. The upper part of the tarsi is feathered; the tail is broad, and very slightly rounded.

This bird, when adult, is from twenty-six to twenty-eight inches long, according to the sexes; the tail is ten or eleven inches; the tarsus measures two inches and three lines; the bill, fifteen lines.

The female is distinguished by being of a smaller size. The feathers of the tuft are not of a perfect white, but varied with brown or black, and the reflexions of the plumage are also less brilliant.

This bird inhabits the climates of Guiana, the banks of the Amazons, and of the Plate river; some individuals from Brazil vary a little; but this may, perhaps, be attributable merely to climate, as the essential characters are alike. In them, the barbs of the quills are truncated, and with a subulated point, exactly like the others, and the forms of the bill and feet are similar; the difference consists in some slight peculiarities of plumage, on which it is needless to insist here.

A couple of these birds, from the Dutch colonies of Guiana, lived for some time in a menagerie near Utrecht. Some also were brought up in the menagerie of M. Backer before mentioned. They are very familiar, quiet birds, living on good terms with the other gallinæ, with which they may happen to be placed. Their cry is a whistling or hissing sound, of no great power or compass.

According to Bajon there is nothing particular in the trachea of this bird, or different from that of birds in general. It proceeds directly into the breast, and is arranged there in the ordinary manner; nor is there any difference in this respect between the male and female.

This bird being of rather a stupid character, the species has been nearly destroyed in inhabited districts. Azara met

with it only in deserted forests, towards the twenty-fourth degree and a half of latitude. These Penelopes go in pairs, or in small flocks. Their cry may be represented by the syllable *pi.*

Bajon, already quoted, tells us that this bird is extremely rare in the environs of Cayenne, and only to be found far in the interior. They are very frequently to be found towards the upper part of the river of *Oyapoc*, especially towards the Camoupi. The Indians established there tame them, and bring them to Cayenne.

The *Penelope Marail* is a very distinct species from Cristata, with which it has been sometimes confounded: the external differences, it is true, are not so very obvious to a superficial observer; though, on examination, they are striking enough; but the disparities in the anatomy of the two birds, leave no doubt whatever respecting the distinction of species.

In the Marail, the bill is shorter, and the upper mandible less arched, than in the Cristata. The distance from the point of the bill, as far as the aperture of the nostrils, is less considerable in the first than in the last. The tarsi and toes of the Marail are more slender and less long, than the same parts in the Guan. The plumage of the Marail is brilliantly reflected.

The Marail, says Sonnini, is easily tamed; he has seen one whose familiarity was troublesome; it was extremely sensible to caresses, and when its own were returned, it would express the most lively joy, by its motions and cries, similar to those of a hen gathering her chickens around her. In a state of liberty its manners are mild and tranquil. It inhabits solitary places, and feeds on wild fruits. The female makes her nest on trees, and lays from two to five eggs, according to age.

They are rarely to be met with in flocks, each pair sufficing

for themselves; they do not seek, but even avoid the society of their consimilars. They are the earliest birds which salute the dawn with their cry, which does not correspond with their other good qualities, for it is loud and disagreeable; but it is not frequently heard, and scarcely ever during the course of the day.

The Marails are almost always perched; they descend to the ground, only for the purpose of gathering the fruits and grains, which constitute their subsistence. They fly heavily, and with much noise; but, in compensation, they run with remarkable swiftness, keeping their wings unfolded. Their flesh is very good, though not better than that of the pheasant: it is, however, somewhat hard, except in the young birds.

The total length of the Marail is twenty-three or twenty-four inches; the tarsus, two inches and a half. The female differs from the male only by having a less ample tuft, and by redder shades in the plumage.

The tube of the trachea in the Marail, is composed of rings similar to those which have been remarked in the other Penelopes; these rings are alternate, and the intervals membranous; the tube, after having followed the length of the œsophagus, through the neck, as far as the clavicles, passes to the left side of the gizzard, is directed towards the exterior of the cavity of the thorax, passing over the anterior portion of the left claviele, between the two bones of the furca; it then advances over the front, or rather over the prominent part of the sternum, turns at some distance from the crest of this bone, returns over the same side between the bones of the furca, and passes, refolding itself, into the cavity of the thorax; the length of the tube which advances between the *ossa furcata*, is an inch and a half.

The circumvolution of the tube of this trachea differs from all the others, in the genus Penelope. It approximates more to the trachea of *Crax Alector*, of *Tetrao Urogallus*, and of

Platalea Leucorodia; but in the first of these species, the tube presents extraordinary dilatations; in the second, the circumvolutions take place over the muscles of the neck; and in the third, these foldings or turnings, are concentrated in the cavity itself of the thorax.

As the curve which the trachea forms in the Marail, takes place on the inclined plane of the muscles which cover the bones of the furca, it was necessary for nature to provide that it should not sink down over this sloping part. In the *Crax Pauxi*, in the *Penelope*, *Yacou*, and in the *Parraqua*, the tube, in passing over the surface of the great pectoral muscles, is there, as we have seen, attached by the cellular tissue, of which we have spoken; but in the present instance, a particular bond of connexion was requisite: at the upper extremity of the curve is attached a very powerful muscle, which embraces by its fibres many rings of the trachea; it reascends towards the crest of the sternum: and, arrived at the prominent part of this bone, it is divided into two cords, which, descending, proceed one on each side of this crest, remaining united only by a cellular tissue. These two cords, in their descent, confound many of their fibres with the pectoral muscles: and when they have attained the extremity of the sternum, they unite again into one muscle, which attaches itself to the tunic, containing the excrements, within a little of the place where the xiphoïd cartilage is formed.

These birds generally hatch twice a year; that is to say, at the commencement of the rainy season, towards the month of December or January, and at the end of this season, about the month of May or June. They are used to lay three or four eggs, and often six. These birds construct their nests, in the midst of very tufted trees, and as near the trunk as they can, so that there is considerable difficulty in discovering them. When the young are disclosed, the mother nurses them in the nest, until they grow a little large, and the

feathers commence to sprout; then, being about twelve or fifteen days old, they descend to the ground with their mother, who leads them about, as our hens lead their chickens. The young, when once on the ground, eat small grains, fruits, and insects. The mother scrapes the earth exactly like our hens, receives her young in the same manner under her wings, where she shelters them from the rain and the injuries of the weather. When they are large, and in a state to fly, they quit the mother, and remain together until the renewal of the rainy season, when the desire of reproduction separates them into pairs.

When taken young they are easily tamed, and become extremely familiar; they know so well the house in which they have been brought up, that, to whatever distance they may remove from it, they are sure to find it again; but it is with great difficulty that they can be brought to sleep there, always preferring to pass the night upon the roof, or perched upon trees in the neighbourhood of the house,—pretty nearly as our domestic poultry do, when they sleep abroad.

The common cry of the Marail is soft and gentle, and this is the one which it utters every morning at the point of day; but when wounded or irritated by any animal which pursues it, it sends forth cries more strong and vehement. The flesh of these birds is very good eating, but not comparable to that of our European pheasants.

The Marail inhabits South America; it is commonly found in all the woods of Guiana. The Indians know this bird under the name of *Maraye;* the French colonists call it pheasant (*faisan*). It is the same bird which is figured by Buffon, under the denomination of *faisan verdatre de Cayenne.*

The Parraqua, made a separate subdivision by our author, is retained in the genus Penelope by M. Temminck. It was formerly, most erroneously, classed with the true

pheasants. M. Temminck gives as synonimous of it, the *Catracas* of Père Feuillé, *Phasianus Motmot*, Lin., *Faisan de la Guiane* of Brisson and Buffon, *Phasianus Parraqua* of Lath. the *Parraqua* of Bajon and Sonnini, *Yacu Carraguata* of Azara, and *Phasianus Garrulus* of Humboldt.

Many of the names given to this bird, in imitation of the discordant cries which it utters, morning and evening, have given rise to these different indications; in fact, the syllables, catacras, parraqua, parrakoua, hannequaw, &c. indicate in different idioms, the sounds peculiar to the voice of this bird. Some disparities in the colours of the plumage, of very little importance, marked in the descriptions of authors, are simply owing to the slight differences characteristic of different ages. Among others, the phasianus garrulus of Humboldt does not differ, even according to the confession of this eminent philosopher himself, from the *motmot* and the *parraqua* of Latham, but in having the belly white, which character is common to all the young parraquas; moreover, this bird is too well distinguished by the sinuosities of its trachea, and by many other characters peculiar to itself, to be mistaken for any other.

The parraqua is distinguished from the penelopes by its bill, the upper ridge of which is more elevated and curved, and by the point of the mandible, which is more swelled and vaulted, and these differences approximate the bill of this bird in some measure to that of the pheasants. The parraqua has no flabby and flowing membrane under the throat, and no considerable nudity on this part; a narrow naked band only, extends on each side of the throat along the edges of the lower mandible of the bill; these two bands are divided by a blackish skin, covered with thick and long hairs; when the bird is agitated, the two lateral bands grow quite red. The tarsi are long and narrow, and the tail strongly rounded.

Both sexes have elongated feathers, which form a tuft upon the head.

The total length of the adult bird is from twenty to twenty-one inches. The naked skin of the eyes which communicates with the cere of the bill is of a livid purple, becoming coloured with red according as the bird is agitated.

The peculiar conformation of the trachea of this bird was first noticed by Père Feuillé, subsequently by Messrs. Sonnini and Bajon, and afterwards by M. de Humboldt. The tube of this trachea, composed of alternate rings, like those of the guan and the marail, does not differ from that of the first, but by its greater length, and by the sinuosity which it describes. It has no peculiar muscle, as in the marail.

The trachea, in passing over the left clavicle, rises over the great pectoral muscle along the crest of the sternum, directs itself the entire length of this muscle as far as over the membranous tunic which contains the entrails, turns there, and reascends in the same direction over the right pectoral muscle, to enter the cavity of the thorax in passing over the right clavicle. The two tubes adhere to the pectoral muscle by a cellular tissue, the fibres of which pass over the crest of the sternum.

M. de Humboldt, who has measured the tube of this trachea, says that that of the male, from the upper larynx to the bronchiæ, was fifteen inches seven lines, while that of the female was but five inches four lines. The trachea of the male descends at first between the integuments beyond the sternum, as far as the legs, then it turns, makes a great sinuosity in reascending, and enters between the lungs. The trachea of the female, which is shorter, in the proportion of five to two, does not make this sinuosity, but enters, without refolding, directly into the bronchiæ.

M. de Humboldt did not find any sacs in the lower larynx of this bird, as in fact there are none in any gallina,

and they exist but in very few species of birds. There was nothing but an inflation of the last rings, which are the widest. The base of the lower larnyx is supported by a cartilage, which is a round, membranous, crenulated plate, on which rises a small compressed bone. M. de Humboldt believes, that the want of sacs in the lower end of the larynx of this bird, is supplied by the mechanism of the upper larynx, which, to a certain extent, says M. Temminck, may be true; always keeping in mind, that mechanism of whatever kind, whether in the upper larynx or in the tube of the trachea, can only serve to give a greater compass to the voice, the sounds of which are formed invariably in birds, in the lower larynx only, and by the aid of such mechanism as belongs to it.

The upper larynx is thus described by M. de Humboldt:— Above the aperture of the trachea, rises a sort of chink, which leads to two membranous pouches; by blowing through the bronchiæ into the tube of the trachea, these pouches evidently become inflated. At the bottom is a triangular socle, similar to what we have already described to exist in the preceding species.

The parraquas lay four, five, or six eggs. They construct their nests on small and very tufted branches, at a height of about seven or eight feet. When the young are disclosed, they descend in a short time to the ground, and the mother conducts them, just after the manner of a hen. The usual aliments of these birds are very various; but when young, and having but just quitted the nest, they live almost always on worms or small insects, which the mother finds for them by scratching up the earth. When they grow large and are able to fly, they quite abandon the mother. Beside fruits and grains, they also eat the tender grass; accordingly they are often seen on the ground, along the savannahs or prairies, where there is young and green grass, and that pretty early

in the morning after the rising of the sun; for as soon as the heat commences to become a little stronger, they penetrate into the depth of the woods, and remain in the thickest shades, where there is the greatest abundance of green leaves, so that it is extremely difficult to discover them. In the evening they sally from their prison, first uttering their accustomed cries, and proceed in search of food.

The parraqua is found in woods at no great distance from the coasts, and rarely in the interior of the country. It delights much in the neighbourhood of settlements, and of cultivated lands. The resounding voice of the male very well expresses the different syllables which we have mentioned as having been put together in its various native names.

It appears that, including some unimportant varieties of plumage, this same species is extended through Brazil, Paraguay, and Guiana. Humboldt has seen them to the north of the equator by the river Madeleina, in the province of Caraccas, and in New Andalusia. Flocks of from sixty to eighty of them are perched upon the dead branches of trees, in close array, filling the air with their piercing cries of *catacras! catacras!*

Under the name of, Hoazin, Fernandez has described a bird of Mexico, approaching to the size of the turkey, and whose generic and specific characters being pretty fully given in the text, there would be the less reason to insist upon them here. But we must observe, that as some degree of confusion exists respecting this same bird, it may be as well for us to enter into a short account of what authors have said upon the subject.

The bird of Fernandez is described as bearing a tuft, the plumes of which are white on one side, and black on the other; more lofty than that of the hocco, and of a different form. The bill is curved; the chest of a yellowish-white; the wings and tail marked with white spots or stripes; the

back, the upper part of the neck, and the sides of the head, are of a fulvous-brown; the feet of an obscure colour. The Spanish author adds, that its voice is very powerful, articulates its name, and is a sort of howling; that it remains in deep forests perched on trees on the banks of waters, to lie in wait for the serpents which constitute its prey.

The name of *Hoactzin* is given by the same writer to a smaller bird, only the size of a hen, whose song is very agreeable, sometimes resembling a mocking laugh, and whose flesh is an article of food, though neither tender nor well flavoured.

The Spanish author again, in his history of birds of New Spain, describes another bird, which he does not name, but to which he attributes a very long tuft, an ash-coloured plumage, and the magnitude of a swan. This has more analogy with the first we have mentioned than with the last.

Aublet has recognized in the figure of pl. enl. 337, a bird of Guiana, which feeds its young with insects, and which doubtless is the *sasa* of Sonnini, though this last becomes frugivorous in the adult state; but this, as we have already seen, is a very common case with gallinaceous birds. Of this bird, Hoffmansegg has constituted his genus *Opisthocomus*, which was adopted by Illiger, and subsequently by the Baron, as we have seen.

We will give the generic characters, after the *Prodromus* of Illiger:

The bill is moderate, thick, conical, and compressed, and naked at the base. The upper mandible is rounded at the top, and a little curved at the extremity; the nostrils are very wide, situated at the middle of the bill, and as far as them extend some hairs, proceeding from the forehead; the cheeks are naked; the tail is long, plane, rounded, and composed of ten rectrices; the feet are tetradactylous, cleft, and

of moderate size. The thumb is shorter than the internal toe, but its claw is longer than all the others.

The tuft of this bird is composed of narrow feathers, red about half way from their origin, and black for the rest; they descend backward as far as the middle of the neck. The bird, when affected with lively sensations, can stiffen them, but they then assume a horizontal, not a perpendicular position; under the same circumstances, the tail widens, and assumes a fan-like form. The general port of this bird is that of the peacock, and its size is the same; though the tints of the plumage are a little sombre, their effect as a whole is agreeable. For the colours in general, we refer to the text. The feet and toes are red; and the claws black.

Sonnini declares, that these birds are but few in number in the districts of Guiana over which he has travelled. He has met them sometimes in pairs, sometimes in small flocks, of six or eight at most, but never in the deep woods, nor in elevated situations; the inundated savannahs are the places which they prefer, because they feed on the berries of a very large species of arum, which the Guianese call *moucou-moucou*, and which is the *arum arborescens* of Linnæus and Aublet; as they cannot take this kind of aliment, but when perched, they never go to the ground, and during a portion of the day they remain tranquil on some bough at the edge of the waters. They will easily suffer themselves to be approached, which is probably owing to their being seldom hunted, in consequence of the remoteness of the places which they inhabit. The odour too of *castoreum*, which their flesh exhales, renders it uneatable; it will only serve for the purpose of baiting fish, and is especially employed for that species called *mugil maximus*.

It is quite evident from the foregoing observations, that the *opisthocomus* of Hoffmansegg and Cuvier, is not the second bird *hoactzin*, described by Fernandez; nor, from the slight

indications given by that writer, can it be fairly concluded that it is identified with the first. It is, therefore, with great justice that our author remarks, that the name *hoazin* was applied by Buffon without any proof. We have put our readers in possession of every thing which is known on the subject.

We now come to that most celebrated of all birds, the PEACOCK; one which has given occasion to so many fine descriptions both in prose and verse, but of which the most eloquent, without exception, is to be found in the works of Buffon, from the pen of M. Gueneau de Montbeillard; but as the works of Buffon are universally read, and as the eloquence of the original has been so inimitably transfused into our own language by Goldsmith, we shall draw our simple descriptions from other sources, without vainly and presumptuously attempting to become the rivals of either the French or the English writer.

It is not indeed an easy task to undertake the description of a bird on which Nature has showered, with so much profusion, her rarest and most brilliant colours. It is difficult to render merely by words, the various hues with which the costume of the peacock is embellished. The radiant lustre which we admire in the most precious gems, is enkindled, in every dazzling variety of colour, in the rich plumage of this highly gifted bird.

The article on the peacock to which we have just alluded, from the elegant pen of Montbeillard, brilliant and graceful as it is, will be found by the naturalist to be a purely poetical picture; he will, in perusing it, have to regret the want of that succinct, clear, and precise exposition of specific characters, which the interests of science demand. Sonnini, however, in his addition to that article, has supplied this desideratum;—one, we fear, too frequently to be found in the descriptions of indigenous animals by the eloquent Buffon.

Before we pass to any notice of the peacock, which we have daily under our view, and which the assiduous care of man has naturalized, almost in the coldest regions, it will be as well to follow the steps of M. Temminck, in making our readers acquainted with the wild peacock, the original stock of our magnificent bird. It has been long since decided that India was the cradle of the peacock. It is in the countries of Southern Asia and the vast Archipelago of the Eastern Ocean, that this bird appears to have fixed its dwelling, and to live in a state of freedom. All travellers who have visited these countries make mention of these birds. Thevenot encountered great numbers of them in the province of Guzzerat; Tavernier throughout all India; and Payrard in the neighbourhood of Calcutta. Labillardière tells us, that peacocks are common in the Island of Java. We well know that the chase of the peacock forms one of the greatest amusements in Bengal, and in the Islands of Java and Sumatra; but this sport is somewhat dangerous, says M. Temminck, as the proximity of the tiger, in those places where the peacocks most abound, obliges the hunters to use much circumspection, for this dreaded beast of prey shows a peculiar predilection for the flesh of these birds; notwithstanding this, the chase of the tiger himself, forms at present one of the most favourite diversions of the gallant officers of our Indian army.

Though all writers agree in this, that the peacock is an inhabitant of the countries of India, and lives there in a state of freedom, yet none before the time of M. Temminck had favoured us with a faithful description of it, taken from nature. Neither had they given any figure of it.

It is impossible to determine with precision the epocha of the domestication of the peacock; we know well that it must have been of the most remote antiquity, since the fleets of Solomon, in their distant voyages, brought back every three years to Palestine, peacocks, which are enumerated among

the riches which the cargoes of these vessels contained. We are informed by Pliny, that the orator Hortensius was the first Roman who had a peacock killed for his table, when he entertained the College of Pontiffs at a sumptuous banquet. The first who bred and fattened peacocks for culinary purposes was Aufidius Lurcon, towards the time of the last war of the pirates; by this means, he procured a revenue of sixty thousand sesterces. In the feasts of the Emperors Vitellius and Heliogabalus, enormous dishes were frequently served up, composed of ragouts of the tongues of peacocks and their brains: the first of these emperors was habituated to term a dish of this description, the Shield of Minerva. Buffon says, that at first they were very rare in Europe; at Athens, they were exhibited, during thirty years, at every feast of the new moon, as an object of curiosity, and people used to run in crowds from the neighbouring towns and cities to behold them,—from Lacedemon, Thessaly, and Bœotia. This was after the time of Alexander; for that hero, though well acquainted with Greece, had never seen them until he marched into India, where he found them flying wild on the banks of the Hyarotis, and was so struck with their beauty that he decreed a severe punishment on all who killed or disturbed them. Towards the latter end of his reign they had so greatly multiplied in Greece, that Aristotle, who survived his pupil only two years, speaks of them being perfectly well known in that country.

M. Temminck had an opportunity of examining two males of the wild peacock; one was sent to him alive from Batavia, and the other was in a menagerie in this capital; these birds resembled each other perfectly, and were as familiar as the domestic peacocks.

In brilliancy of plumage the wild peacock stands unrivalled among the feathered race. Vainly should we attempt to put any other species in competition with him in these attributes

of magnificence; no species can rival him, and if we could venture to set a limit to the boundless riches with which Nature can clothe the animated creation, we might be tempted, under this point of view, to consider the wild peacock as the *chef d'œuvre* of her productions, the union of every various external beauty, the *ne plus ultra* of splendor. We find in his incomparable robe, united, all the brilliant colours that we admire separately in other birds; we find all that glistens in the rainbow, and sparkles in the mine,—the azure tints of heaven, and the emerald of the fields.

The wild peacock is about the size of a hen turkey. The length from the end of the bill to the extremity of the tail is four feet five inches; the tail alone is nineteen inches; the tarsus, four inches, seven lines; the bill, one inch, eight lines; the aigrette which adorns the summit of the head, is two inches high. The result of this measurement proves that the difference of size between the wild and domestic breed is trifling, and that travellers have been erroneous in asserting, that this was the only or the principal difference existing between them. The light and elegant tuft which adorns the head of the domestic peacock is in all respects alike in the wild. The brilliant azure,—shining, with reflexions of green and gold,—which decorates the head, and the velvety scales which cover the back, are of a purer tint. But it is in the richly assorted colours of the alar coverts, that one of the principal differences consists. The wild peacock has all the small coverts of the upper part of the wings, as well as the subalar plumes, of a deep and brilliant green; they are bordered by green, with reflexions of gold; the small and the middle coverts are deep-blue, bordered with golden-green; the greater coverts are of a greenish and metallic-black. All have broad edgings of fine bronzed-purple, changing into molten copper colour; the bastard wing is of a bistre-brown; the first ten great wing-quills are of a deep rusty-red; the

others have their external barbs of a fine green, with light bronzed reflexions; the internal barbs are of a deep bistre; the belly, flanks, and abdomen, are blackish, with reflexions of golden-green. These plumes are terminated on the knee by a fawn-coloured band.

It would appear that the wild pea-hen has but one brood in the year; she lays from twenty-five to thirty eggs, which she deposits on the ground, in well-sheltered places, where they are secure from every attempt of the tiger.

In the Sanscrit language, the wild peacock is termed *Mavdlie.*

The wild peacocks which are brought up in the menageries of Java, always exhibit their natural inclination for liberty, returning into the woods whenever they can find an opportunity.

To M. Sonnini we are indebted for a most simple, clear, and precise account of the domestic peacock. From him, therefore, we shall borrow what we have to say on the subject. If on this point we depart from our system, and enter a little more into description than is customary with us here, it is necessary for the purposes of supplying the deficiences of the text. Moreover, the peculiar character of the birds on which we are writing, appears in a more especial manner to demand it.

The peacock is pretty nearly about the size of a middling turkey; its ordinary length, from the end of the bill to the tip of the tail, is three feet eight inches; the tail is more than a foot and a half, and the folded wings extend to about five inches of the length of the tail.

A tuft, resembling in nothing those on the heads of tufted birds in general, an elegant diadem of beauty, surmounts the small and oblong head of the peacock; this handsome aigrette is formed of four and twenty straight and slender feathers, raised about two inches above the head, crowned only on their summit by barbs, like those of ordinary feathers, and having

almost over their entire length only rare and detached barbs. The bill is convex, thick, and of the same form as that of gallinaceous birds in general; the apertures of the nostrils are ample, and the feet of the male have but a single, very thick spur, nine lines long, terminating in a sharp point. But the characteristic trait which distinguishes the peacock from all other genera of the numerous family of the gallinæ, is the singular length of the upper tail-coverts, they being more elongated than the quills themselves: the feathers of this sort of false tail have their tubes furnished with disunited barbs, terminated by other barbs adhering one to another, ornamented with long fringes through their contour, and forming an extended vane, marked in the centre with an eye-like spot.

A brilliant green, lustred over with gold, and changing into a bright blue, covers the head, the throat, the neck, and chest. On each side of the head are two long white spots; one passes above the eye, and the other, which is shorter, and much broader, below. The tips of the feathers of the aigrette, are adorned with the same mixture of rich colours as the top of the head. Their divided and shaven barbs are blackish. The feathers of the back and rump, are of a very splendid golden-green, glossed with copper-coloured reflexions. A circle of velvety black terminates and edges these feathers, which by their arrangement and position represent the scales of fishes. In the numerous and long upper tail-coverts, divided into several ranks, placed one above the other, the stem is white, and furnished from the origin to the extremity of the feather with long divided barbs of a brilliant golden-green, with cupreous reflexions. The barbs unite at the end of these feathers, and form a vane, at the centre of which is the eye-spot, whose middle is a heart-shaped velvety black spot, surrounded with a circle of green, with a blue and violet reflection. This again is encompassed with

two other circles, glossed with different tints of gold and copper-colour, varying into other shades, according to their position with respect to the light. The external row of feathers are not adorned with the eye-like spot, but are of an uniform dusky colour. The belly and flanks are blackish, with some tints of golden-green. The lower tail-coverts, and the tail itself, composed of eighteen quills, slightly graduated, are of a greyish-brown. The feathers of the legs are clear fawn-colour. The small upper wing-coverts, as well as the scapular feathers, are varied with blackish fawn, with a slight tint of golden-green on the small coverts only. The middle are deep blue, changing into golden-green; and the great coverts, farthest from the body, are reddish. The wing has twenty-four quills; the first ten are red; the tenth has some blackish spots, mixed with a little golden-green on the external side, and red, with blackish spots on the internal. The following nine quills are all blackish, with the exception of some few spots of golden-green on their external side. Finally, the four which are nearest the body, are varied with the same colours as the scapular feathers. The iris of the eye is yellow, the bill is whitish, and the feet and claws are grey.

The pea-hen is smaller than the male. Her train is very short, and destitute of the ornaments of that of the male, and the feathers of which it is composed are even shorter than the tail itself. Her crest is shorter, and her whole plumage rather cinereous. The throat and neck are green, and the spots on the side of the head larger than those of the male.

The variegated, as well as the white peacock, (of which we shall speak a little more particularly by and by,) is but an accidental variety of the species. The first is most frequently white upon the wings, belly, and breast; sometimes also on other parts of the body. The rest of the plumage is like that of the common individuals.

The peacocks constitute the great ornament of menageries. During summer these birds are fond of living in an extensive space, where they can choose elevated situations for perching. But in winter it is necessary to place them under shelter against the inclemency of the weather. The preferable habitation for them is one in which they can perch. They may be fed with barley, with millet, with cummin, with vetches, and with peas. Barley is their habitual food. In winter, from time to time, they may receive Windsor-beans, roasted. In the fine season, when the peacocks can get insects, grass and gravel, they are less exposed to maladies. Elder-flowers are said to be poison for them. Milk is pernicious to them.

The season of reproduction with the peacocks commences at the end of March, or beginning of April. No more than six females are allowed for one male; and to render the fecundity of the eggs more certain, it will be better to allow him but three. There is an interval of one day between the laying of each egg. When they are taken away, according as they have been laid, the entire brood will amount to eight or twelve. In the wild state, as we have seen, they are much more numerous. The eggs are of the bulk and form of goose-eggs, of a fulvous white, with spots or points of a deeper hue. The pea-hens are not very assiduous in hatching, and often quit their eggs to fly to some elevated place. The best plan, therefore, is to have those eggs hatched by a hen-turkey, which can cover as many as twelve of them, or by a hen which can cover eight. When the pea-hen herself conducts her young, it will be necessary to bring her back every evening, and shut her up in some low place, so as to force her to remain on the ground, and keep the little ones warm with her wings. If left at liberty, she will quit them, and go to perch upon some tree. It will sometimes occur, though rarely, that she will take one or more of the young upon her back, and fly off with them to some thick branch.

The young pea-chicks rarely follow the mother to elevated situations until four weeks have elapsed. About this time the aigrette commences to appear, and then great care ought to be taken of the young, not only in relation to the maladies to which they are liable at this epoch of their life, but also because, towards this time, they begin to peck at each other, and the strong will drive away or dispatch the weaker. The young peacocks, which have been hatched by a hen or turkey, should be accustomed to perch as soon as the faculty of flying will permit them, the earth being too cold for these young birds, when they are so large as not to be sheltered under the wings of their adopted mother.

Until the second year, the male and female have the same plumage. In the third year the long dorsal plumes of the male begin to appear, and it is then that they commence to wheel the tail, and exhibit the instinct of re-production. They will sometimes, indeed, couple in the second year; but usually without any effect. The pea-hen does not begin to lay until the third year. When the young are sick, they are cured as other poultry, especially by giving them insects, meal-worms, flies, the larvæ of ants, spiders, and grass-hoppers, from which the feet must be removed.

The peacock, properly speaking, has no crop; still the food receives its first maceration in the dilatation of the œsophagus. At a short distance from the stomach, a glandulous knot, or gangli, has been observed, filled with small canals, which furnish a great abundance of viscous and gastric juices. The stomach is furnished externally with a number of slender attenuated fibres. Bartolinus says, that he found in one of these birds two gall bladders, while there was but a single pancreatic duct, which, in birds in general, is usually double. The cœcum is double, and directed from back to front; its length equals that of all the other intestines taken together, and it is more wide and capacious.

The sonorous and discordant cries of the peacock, are produced, as in all birds, from the bottom of the trachea. The lower larynx, and the bronchiæ, are provided with membranes, whose vibration adds to the dilatation of the voice. The rings of the trachea are entire, round, and osseous. There is no socle at the aperture of the upper larynx, but it is furnished with rugosities.

The rump is very muscular, and its muscles serve as motores to the long dorsal plumes implanted on their meshes, and whose tension, or dilatation, causes them to be raised, spread out, or lowered, according to the inclination of the bird.

From the small extent of their wings, it would appear that the flight of the peacocks must be low and heavy; still they can make tolerably long passages in the atmosphere; and the amplitude of their uropygial feathers, which, when the air is agitated, or the wind contrary, might prove an impediment to their progress, must, in calm weather, facilitate their course, by lessening the specific weight of their bodies. They are fond, as we have observed, of elevated situations, and will perch upon the highest trees, on the tops of towers, and even on the spires of belfries.

A sympathy has been observed to exist between peacocks and turkeys, which are also among the number of those birds that can form the figure of a wheel with their tails; and they and the peacocks agree better together than either with the rest of the tenants of the poultry-yard.

Elian extends the life of the peacock to one hundred years, which opinion Willoughby assents to. It must, however, be ranked among the number of fables with which natural history abounds, and which have drawn upon it, though undeservedly, the contempt of men of sense. The real duration of the life of these birds is not more than five and twenty years.

The peacocks, like other gallinæ, seize the grain with the point of the bill, and swallow it without bruising it. In drinking, they plunge the bill into the water, where they make five or six quick movements with the lower jaw, and, holding their head in a horizontal posture, they swallow the water without any motion of the bill. It is said, that during sleep they conceal their head under the wing, keeping the bill to the wind. They are birds of extreme cleanliness, and endeavour to cover or bury their excrements.

"Their brilliant plumes, which surpass in beauty the fairest flowers, wither, like them, and fall with each succeeding year. The peacock, then, as if sensible and ashamed of his loss, fears to be seen in this humiliating state, and seeks out the most gloomy retreats in which to conceal himself from every eye, until returning Spring restores him to his accustomed splendour, and brings him back upon the scene, to receive the homage which his beauty inspires. It is pretended, that, in reality, he enjoys admiration, and that the true method to engage him to display his fine plumage, is to bestow attention and praise upon him; and that, on the contrary, when he is neglected, he folds up his treasures, and withdraws them from the view of those who know not how to appreciate them."—*(Buffon.)*

This, perhaps, is carrying matters a little too far; but we do not see, for our own parts, why nature, who does nothing in vain, should clothe any of her animated and sensitive productions in such resplendent beauty, unless it was intended as a source of enjoyment to themselves, or their kind. It is rather too much to assert, that it was for the purpose of pleasing the eye of man alone that she produced this *chef d'œuvre* of the feathered race. She has filled with music, and with loveliness, the trackless forest, and the mountain-wild, where his voice has been never heard, where his footsteps have never penetrated.

The whiteness of the plumage in birds, as well as of the hair in quadrupeds, has frequently given rise to serious errors. There is no doubt that the cold of the Arctic Regions must exercise a most powerful influence over all the productions of nature, for it acts in contradiction to the development of generation: plants themselves experience this influence, and are stunted in their growth, and the stature of man is curtailed, under the empire of the polar winter. Animals are also found in those countries, whose principal livery is a pure white, and this colour is spread in greater abundance there, over the plumage of birds, than elsewhere. But the greater portion of the quadrupeds and birds of those climates, preserve this white livery only during the winter season. The hare, the ermine, the rat, and other quadrupeds, resume, in summer, their ordinary colours, such as we see them invested with in the temperate zones. There are, in fact, few quadrupeds that are constantly and totally white—none, perhaps, with the exception of the ferret, and the Polar bear. The case is pretty nearly the same with birds. Most of them change their livery at the approach of summer. The species of *lagopus* are white in winter only, and even in that season they preserve their tail, composed of black quills. Many other birds of the Arctic Pole have the major part of their plumage of a pure white; which certainly proves, that the white colour, extended principally among the animals which inhabit these countries, is peculiar to the glacial climate; just as the brilliant colours, with which we see tropical animals invested, may be considered as proper to the torrid regions, and produced by the influence of an ardent sun. But this does not prove that a bird, aboriginal of the countries under the torrid zone, and invested with the richest colours, should lose all impression of them by the mere influence of a cold climate. Indeed it appears most evident that the peacock never exists in a wild state in any northern country. An inhabitant of

the torrid zone, it has been naturalized and domesticated among us by the cares of man, who assembles the gifts of nature, scattered through every latitude of the earth, to administer to the gratification of his appetite, his comfort, his interest, or his vanity.

We must, therefore, pay no attention to the account of Frisch and Willoughby, that the *white peacocks* are aboriginals of Sweden. If this supposition could be alleged with the slightest reason, we might naturally conclude that these birds should still inhabit that country, or at all events that they did once inhabit it, in a state of liberty. No ancient author, however, makes the least mention of such a fact. But Linnæus, to whose testimony some little weight ought to be attached, expressly tells us, that the climate of Sweden is by no means suitable to the peacocks, and that they are reared there with difficulty; and he makes no exception in favour of the white variety. It is, in fact, rare to find peacocks in a domesticated state in the menageries of that country, such is the difficulty with which they are accustomed to that climate. M. Temminck assures us, that even the white peacocks are more rare there, than in the menageries of Holland.

Yet in this opinion, unfounded as it is, even Buffon was induced to concur. But if we consider for a moment the numbers of birds of all species that turn white in all parts of the globe, northern, temperate, and torrid, we shall find ample proofs for the refutation of such an hypothesis.

We often see birds altogether white, such as sea-swallows, gulls, goëlands, &c., described by various writers as so many distinct species; but investigation has pretty clearly proved that most of these pretended species, were nothing but accidental varieties of individuals, yet young, or arrived at an extreme age.

Buffon, in wishing to prove the constant whiteness of the peacock in northern climates, thus expresses himself:—

"Climate has not less influence on the plumage of birds than on the fur of quadrupeds. We have seen in the preceding volumes, that the hare, the ermine, and most other animals, are subject to become white in cold countries, especially in winter; and now we find a species of peacock, or, if you will, a variety, which appears to have experienced the same results from the same cause, and more important ones still; for this cause has produced a permanent race in this species, and seems to have acted more powerfully upon the feathers of this bird, since the whiteness of hares and ermines is but transient, taking place during the winter only, like that of the wood-hen and the lagopus. But the white peacock is always white, in all countries, in summer as in winter, at Rome, as in Torneo; and this new colour has become so fixed, that from eggs laid and hatched in Italy, come white peacocks."

"If we suppose for a moment," says M. Temminck, from whom these interesting observations are principally taken, "that a race of white peacocks exist, aborigines of the north, how shall we account for the discovery of these same white birds in India? It can hardly be supposed that they were transported from Sweden, into Bengal, or the island of Java." We quote, as a curiosity, another passage on this subject from Buffon, which only proves what an inclination that great man possessed for theory on every topic—

"It could not be without a considerable lapse of time, and under very singular circumstances, that a bird, native to the genial climes of India, and other parts of Asia, could have grown accustomed to the rough temperature of the north. If not transported thither by men, it might have passed either by the north of Asia, or the north of Europe. Though the era of this migration is not precisely known, I yet suspect that it cannot have been extremely remote!"

The white peacock could not have formed in the north a

permanent race, which was transported from India by man, or which could have migrated through the north of Asia into those frigid climates, since in these same countries there is no such distinct race, nor has any author ever mentioned it. These birds, entirely white, are, in fact, very rare, even less abundant, in the wild state, in India, than with us in a state of domestication. They are to be met in those latitudes, occasionally flying in company with great flocks of the wild peacocks, which are decorated with brilliant colours. This is a sufficient proof that, in this instance, as in many others, the influence of climate was over-rated by Buffon; and that this great genius was misled here, as elsewhere, by false analogies. The birds, between which and the peacocks he instituted his comparison, are totally different; and he attributed solely to climate disparities which characterize different species.

A note of M. Sonnini, from the French Encyclopædia, is sufficient to set this question at rest for ever, if indeed the slightest doubt could now exist about it.

"The race of white peacocks is not essentially original to the north, for in 1783 a pair of common peacocks produced, at Gentilli, near Paris, four young ones, two of which preserved the plumage of the parents, and two were entirely white. Nevertheless Mauduyt, who relates this fact, observes that there was no white peacock in the village, nor in the environs. The same thing occurred, a few years before, in an estate equally near Paris. It then appears, that the whiteness of the plumage of the peacock is a simple accidental variety, which one cannot regard as forming a permanent race; and what seems to prove this still more is, that these white peacocks are very rare."

Although the plumage of the white peacock is altogether of this colour, the long plumes of the train do yet retain, at their extremities, some vestiges of the brilliant mirrors peculiar to the species; and all the rest of their livery carries the impression of the different colours, though feebly sketched

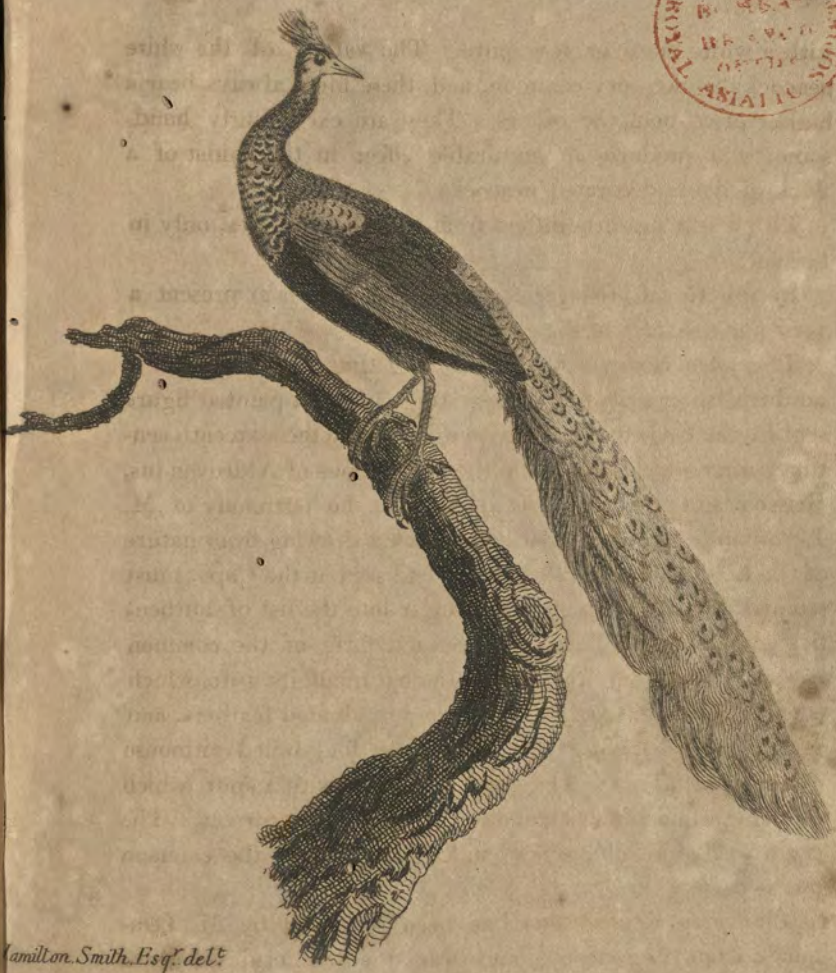
with a white more or less pure. The variety of the white peacocks is not very common, and these birds always bear a higher price than the others. They are exceedingly handsome, and produce an admirable effect in the midst of a flock of richly decorated peacocks.

The white pea-hen differs from the other females, only in her colour.

In the Royal Menagerie at Windsor there is at present a very fine specimen of the white peacock.

The *pavo muticus* was for a long time considered as a doubtful species, its existence resting only on a painted figure sent by the Emperor of Japan to the Pope, in the sixteenth century, after which were made the descriptions of Aldrovandus, Brisson, and other later writers. But the testimony of M. Levaillant, who sent to M. Temminck a drawing from nature of the head of this bird, which he had seen at the Cape, must remove all hesitation at admitting it into the list of authenticated species. It is of the size and form of the common peacock, but differs from it by the nature of its tuft, which is erect, and composed of ten narrow graduated feathers, and something resembling the tail of the long-tailed titmouse (*parus caudatus*). The feet are armed with a spur, which renders Linnæus's denomination of *muticus* incorrect. The cry of this bird differs very much from that of the common peacock.

The *pavo bicalcaratus* has been separated by M. Temminck from the peacocks, and formed into an insulated genus under the name of *Polyplectron*. The grounds for his separation of it are these:—This bird does not elevate the tail, like the peacocks. It has neither the large dorsal plumes, nor the plumes of the train, with which the peacock forms its wheel. Its tail is of a totally different form, not only from that of the peacock and the pheasant, but from that of all the other gallinæ. It is formed of two ranges or tiers of feathers, the upper range lying over the lower, which is the



ROYAL ASIATIC

amilton Smith Esq.r del.t

JAPAN PEACOCK.

P. MUTICUS.

London. Published by Whittaker & C.o Ave Maria Lane. Oct 1829.

true tail. This bird differs again from the pheasant by having a broad and rounded tail, the feathers of the middle of which are not vaulted like those of the true pheasants; and also, in its cheeks, which are not covered with a tissue of velvety red. The character of its having constantly several spurs, also removes it from the peacocks and pheasants.

According to M. Temminck, who speaks from personal observation, the remarkable attribute of the polyplectron, and from which this name is derived, is to have several spurs on the feet, varying, as he says, from six to four. The one described by Sonnerat had five, two on the right foot, and three on the left; the two under ones being united at the base. M. Temminck has seen others which had but two spurs on each foot, and one which had six in all, three on each foot. Two of these birds, forming a part of the collection of this eminent naturalist, have three spurs on the right foot, and two on the left. In these individuals, the two upper spurs of the right foot are united at the base.

M. Temminck has constantly found two spurs united indifferently, either from the lower or upper; but he never saw an individual with three spurs separated. It is also as rare to see one of these birds with only four spurs as with six. M. Vieillot, however, has denominated this bird, *diplectron*, which would fix the number of spurs to two, though he does not deny the truth of the statement which we have now given, from the Dutch naturalist. It is probable that he reckons the two spurs, united at the base, as but one.

But M. Temminck confesses that this character cannot in itself serve for a solid basis of generic separation. He therefore takes his second character from the two tiers of the tail. This double tail has all the feathers, of which it is composed, rounded at the end, and graduated; and when the bird is agitated, it spreads out these two ranges, without, however, raising the tail, whose two planes always remain in an horizontal direction.

It appears to us, we must confess, that the objections of M. Dumont to this generic separation have some weight. Other birds, as well as this, have several spurs to each foot; as, for example, the red partridge of Madagascar. Besides, if this corneous production of spurs may be considered as a proper ground of generic distinction, supposing it to be exclusively attributable to certain species of a particular family, shall the number of the spurs, especially when it is not invariable, be considered equally so? Neither do the simple modifications in the form of the rectrices, and their usage, appear to form a more solid basis for the establishment of a genus, even united with the foregoing character. And, after all, can it be considered, as exactly legitimate or philosophical, to seek, in very secondary parts, for those characteristic marks of genus, which naturalists in general have agreed to derive from essential organs only, such as those of manducation and locomotion. That our illustrious author subscribes to these opinions, is evident from his having left the pavo bicalcaratus where it is in the text. On the exact propriety of that allocation we shall enter into no controversy, leaving it to be determined by more able pens; but of the right of the bird in question to become the type of a separate genus, we own ourselves to be more than dubious.

This bird is about one-third as large as the common pheasant, and the female does not differ from the male but by a less brilliant plumage, and a shorter tail.

The character of the bicalcaratus, or chinquis, is by no means wild; it soon becomes accustomed to domestication, and may be easily brought to propagate in our climates.

M. Temminck informs us, that no nation has taken so much pains in rearing the animals of warm climates, as his own countrymen. Formerly, he says, there were a greater number of menageries in Holland, than in England and France put together. He has seen the birds, on which we are writing, in considerable abundance in the aviaries of his

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THE CHINQUIS.

PAVO BICALCARATUS.

London Published by Vinkeber & Co. Ave Maria Lane, Dec. 1829.

native country, with a multitude of others of the finest species of both continents; but he adds, with too much truth, that the revolution, which spread its ravages so widely over Europe, while it caused injuries of far greater consequence to science, put a stop to the domestication and propagation of many of these species, which might have rewarded the assiduous cares bestowed upon them with results of the most important utility. The long duration of peace, has, however, afforded opportunities of repairing the loss, and renewing those researches and operations which entitle those who pursue them successfully, to the appellation of benefactors of mankind.

These birds inhabit China, and the mountains which separate Hindostan from Thibet. Our countrymen in Bengal have designated the species by the name of the argus pheasant.

We have now to speak of another genus of M. Temminck, admitted by our author, the LOPHOPHORUS.

The characteristic attribute, which appears in the first instance to insulate this gallina from all other birds of this numerous family, consists in the excessive length of the upper mandible of the bill, considerably exceeding the lower. This mandible is strongly arched, very robust, and advances between the feathers of the forehead. It is, moreover, surmounted by a rounded crest, forming on each side a groove, over the entire length of the mandible, and which is cut squarely towards the point, whose inner part is deeply excavated. In consequence of this, the lower mandible does not appear when the bird keeps its bill closed; it is then concealed by the elongated parietes of the upper mandible.

The feet of the lophophorus are short and muscular. The feathers of the thighs cover not only the articulation of the knee, but are also prolonged on the internal part of the tarsus, and arrive on this side as far as the powerful spur with

which each tarsus is armed. The claws are very long, and not much arched, and that of the middle toe is seven lines in length.

The lophophorus is of a stouter size than the pheasant, and more robust. Its length, from the end of the bill to the extremity of the tail, is two feet.

This bird may parallel even with the peacock in beauty. Like it, it bears an elegant diadem on its head, which is gracefully agitated at the slightest motion. Its plumage, resplendent with the brightest colours, produces a truly admirable effect. The female is smaller than the male; her form is less elegant, and brown is the predominating colour of her plumage. Her feet are like those of the male, but a callous tubercle is the only vestige of spur which she carries.

The lophophorus inhabits the north of India, and delights in lofty mountains, and solitary wilds. As an object of curiosity, it is brought to Calcutta. Its disposition is naturally fierce and wild, yet far from being unsusceptible of the influence of domestication. Lady Impey attempted to bring some of these birds into England, but they perished in the voyage. The lophophorus can support cold, but prefers warmth. The male does not crow like the common cock, but his voice resembles that of the pheasant, though more sonorous.

It was with regret that Buffon preserved the denomination of *Meleagris* for the TURKEY. This name is only calculated to lead into error, and modern nomenclators should not have followed the erroneous opinion of Aldrovandus, who was desirous of proving that the turkies are the true meleagrides of the ancients. In endeavouring to defend the wrong application of this specific name, that author cites the plumage, covered with round spots, a character which in fact appertains exclusively to the pintado. It is, indeed, clearly proved, at present, that these Numidian, or African fowls, the melea-

ROYAL ASIATIC SOCIETY OF THE BOMBAY BRANCH OF THE

THE COLOURED LOPHOPHORUS.

LOPHOPHORUS CUVIERI. Tem.

London. Pub.d by Whittaker & Co.ª Ave Maria Lane. October 1829.

grides of the ancients, are our common pintados, or, as they are vulgarly termed, guinea-fowl.

The New Continent was the cradle of the turkey race, and it is there alone that it is found to live in an independent state. It is so in no other part of the world, neither is it any where else so large or so handsome. Its propagation there is doubly more numerous than in our climates. Fernandez finds the primitive stock of the turkey in the Mexican bird *Huoxolotl*; the name which in that language the male turkey bears. The female has another appellation, which might be written, but would be found rather difficult to pronounce.

The turkey, considering its weight, and the insufficiency of its powers of flight, could not possibly cross the tract of ocean which separates the two continents. Accordingly, we find the turkey in a state of liberty in no other latitudes than those of America. It is to the care of man that we owe the acquisition of this useful bird. The domesticated race of our present days is spread throughout almost all the countries of the globe. Wherever the Europeans have established themselves, these birds have been transported, and the unvarying testimony of travellers confirms the facts which we have now alleged.

Father Bourzes, the Jesuit, for instance, tells us, that there are no wild turkeys in the Peninsula, within the Ganges. Dampier saw none at Mindanao. Chardin, and Tavernier, who traversed most parts of Asia, declare positively, that no wild turkeys are to be found throughout that vast extent of territory. According to the last mentioned of these travellers, it was the Armenians who imported them into Persia, where they have not thrived very successfully. The Hollanders brought them to Batavia, where they have prospered much better. Turkeys are even very abundant in that colony, and their flesh is in high estimation. The turkeys of Hindostan are owing to the cares of our own

countrymen; and this fowl is found in very considerable abundance all over India. In Congo, and on the Gold Coast, turkeys are found only in the factories, established there by Europeans, which renders it quite evident that they are not natives of Africa. The domestic turkey is very common at the Cape of Good Hope. A colonist does not think that he receives his guest with suitable hospitality unless his table is covered with a superabundance of poultry. The turkey is especially in high request, and is one of those dishes which are deemed indispensable in a South African banquet.

Sonnini tells us, that the first turkey which was eaten in France appeared at the feast of the nuptials of Charles IX., in 1579. This species is supposed to have been introduced into England from Spain about the year 1524. The name does not occur in the list of Archbishop Nevil's feast, nor is it mentioned in the Earl of Northumberland's household book, so late as 1512.

The wild turkeys are much more bulky than the domestic turkeys, weighing from twenty even to sixty pounds. Their plumage is always of an uniform deep brown; all the feathers are slightly undulated with very delicate traits of brown. The males exhibit varying tints which give splendour to the plumage.

The wild turkeys fly in numerous flocks of many hundreds. They frequent woods and coppices during the day, where they feed on acorns. They return in the evening into marshes, where they pass the night. They perch on trees, and are not unfrequently hunted with hounds.

Wild turkeys are found from the country of the Illinois, as far as the Isthmus of Panama. The birds which travellers have met more to the southward, and mistaken for turkies, are hoccos. They live for the most part in forests, and feed on wild fruits: the acorn of the green oak fattens them very much. Their flesh is preferable to that of the domestic

THE WILD TURKEY.

M.FERA.

London. Published, by Whittaker & Co. Ave Maria Lane, Oct. 1829.

breed, and its flavour approaches to that of the pheasant. These birds quit the woods in the month of September, and approach inhabited places; accordingly, the natives of North America call this season the *turkey month*. They then hunt them, and kill great numbers, which are preserved in ice, and brought into the European establishments.

The wild turkies are now to be met with only very far in the interior. They are extremely shy, and though their flight is heavy, they know so well how to escape and conceal themselves, that they are discovered with difficulty. Those which are brought up in their native country, and which lead a rural life, and are never shut up, have yet become as degenerate as those of our poultry yards in Europe.

The turkey is unquestionably the largest of our poultry. Its usual length is three feet and a half, from the end of the bill to the extremity of the tail. Its height, about two feet, measuring from the soles to the summit of the head. The envergure is about four feet.

Turkey-hens are far from being as profitable, generally speaking, as our common hens. They have need of stimulating food, to excite them to lay, such as hempseed and buckwheat. They have, however, two broods usually in the year, of about fifteen eggs, often less, especially in northern climates. The eggs are white, with some small spots of reddish yellow.

The young ones on coming forth from the egg are very weak, and most assiduous care is requisite for the preservation of their existence. The strong sun kills them almost immediately. The frost gives them cold; but it is chiefly in wet weather that it is necessary to shelter them, without which they are certain to perish. Even the dew is pernicious to them. An elevated situation, and a dry and sandy soil, suit them best; and even there it requires exceeding attention to turn them to any profit.

Turkeys are polygamous, and a single cock suffices for twelve or fifteen females. These females will serve for about five years, but the hens of two and three years old hatch the most assiduously. Those of but one year do not pay sufficient attention to their brood. The strongest and largest should always be chosen for this purpose. It happens more frequently with them than with hens that the eggs are sterile.

In the cold parts of Europe, the female turkey has but one brood in the year, which usually takes place in March or April; but in countries exposed to a milder temperature, she has two: the first in February, the second in August.

The turkey-hen has an interval of one day between the laying of each egg. When she has laid the last, she is observed to remain assiduously sitting on the nest, and then is the time to restore to her the eggs which had been taken away successively, except the first two which she has laid, for they generally prove unfruitful. Sixteen or eighteen are the most which she generally receives. It is necessary to place her food within her reach, for she sits so constantly that she would otherwise forget to eat. The incubation lasts for twenty-seven or twenty-eight days, at which time the young begin to pierce their hard shell.

This is the mode of proceeding when the number of turkeys kept is not very considerable; but the moment that the education of these birds becomes an object of speculation, it is necessary to confide the care of the turkies to a child, or some other person, who must devote themselves entirely to it. For a person who pursues the trade, there can be obtained from three males and thirty females, about six hundred turkey-pouts; among which five hundred, at least, may be reckoned on to live.

The turkey-hen will be desirous of hatching immediately when she has done laying; but this should be prevented until

the others have laid all their eggs. Her desire may be satisfied by giving her a hen's egg; but it is an object that all the young turkeys should come out together. When all the females are ready to sit, a barn is got ready, with as many nests as there are females. In each of these nests, placed against the wall, eighteen eggs are to be put. If possible, each turkey-hen should receive those which she herself has laid. The windows of the place should be closed against the light. The barn should be opened but once in twenty-four hours, the hens taken off the nests, and given their food: after which they should be replaced on the nests, and restored to obscurity.

On the twenty-sixth or twenty-seventh day, the keeper should examine all the eggs, and if he find that the greatest quantity of them indicate the prompt forthcoming of the young animals, he should no more disturb the hens from their nests. He may leave them without food until the turkey-pouts have proceeded from the egg. This precaution is absolutely necessary for the safety of the young, whose body, always more or less wet, may dry from the heat imbibed from the maternal bird; for the access of cold would prove mortal.

When all the young turkeys are disclosed, the turkey-hens should be raised from the nest, and food presented to them. While they are thus employed in eating, the keeper should join two broods together, and place them under a single hen, so as to leave the cares of maternity to but half the number of birds which have been sitting. The other half should be carried into a second barn, where new nests, prepared, and containing eggs of hens and ducks, are destined to be covered by these turkey-hens, so as to derive the greatest possible profit from the state of their temperament.

The young turkey-pouts require much care and attention. Warmth, shade, suitable food, and limpid water are capital

points, to which the greatest regard should be paid. The rain, the cold, the dew, and a too frequent exposure to the sun, will prove pernicious to these delicate birds. As their feet are very tender, and exposed to inflammation from the pricking of nettles, thistles, &c., it is necessary to moisten them now and then with brandy, which hardens the skin, and fortifies the limb. For the first twenty-four hours after they leave the egg, they should receive no food, but care must be taken to leave them quietly under the sitting bird, and not to remove them until the day after their birth.

The first food of the young turkeys should consist of eggs, boiled hard, and finely minced; and after having been for some days confined exclusively to this, they may receive mixed with it boiled peas, and minced scallions. When they are eight days old, the egg should be omitted, or, if continued, the shell should be minced up with it, as this substance is calculated to expedite digestion. If the weather be fine, the young and old should be brought into a place where there is short grass, or into a newly-mown meadow, still continuing to give them their food three times a day, which should consist of boiled peas, milk of lettuce, and minced nettles, sometimes accompanied with oats or barley, boiled in milk. When they are sixteen or eighteen days old, they may have a minced mixture of absinthium, with lettuce, nettles, curdled milk of burdock, a little stale camomile, and some bran.

Every plant which is of a tonic and stomachic character, agrees well with turkeys of all ages Fennel, wild endive, &c., may enter with great propriety into the composition of their food. They should likewise be suffered to seek in the fields for all sorts of insects, snails, worms, grass, and other vegetables, which fortify and preserve them from maladies. Care must be taken to give them nothing but the clearest water, and to shelter them immediately if a rain or thunder-storm should come on, or even a strong gust of wind. At a

month old, they may be brought into the fields, and every other kind of food totally left off, except what they get there.

Vetches, both wild and cultivated, are poison for turkey-pouts, and a superabundance of lettuce is injurious and relaxing to them. The immoderate use of it may be fatal. Aromatic herbs in general are to be given them in preference, and all such as are more calculated to stimulate than to cool.

There are other plants in the fields which are also prejudicial to the health of turkeys, and some which, for them as well as geese and ducks, are a true poison; such as henbane, the great digitalis with blue flowers, and cicuta. These plants should be pointed out to the conductors of the flocks of turkeys, that they may pluck them up wherever they are to be found in the pasture.

When the young turkeys have just broken the shell, the head is covered with a kind of down, and they have neither glandulous flesh, nor barbles. It is only at six weeks or two months old that these parts begin to develop. The time of this development is as critical for them as that of dentition for children, and some wine should then be mixed with their food, to strengthen them. Some time before this takes place, they begin to perch.

It has been said, but without foundation, that the temperament of turkeys does not differ from that of the common fowl; that their maladies are the same, and that similar modes of cure must be employed for them. It is certain, that when taken proper care of, nourished sufficiently, and lodged in airy and wholesome habitations, these birds may be preserved from many accidents to which they would otherwise be liable: still it cannot be denied, that though belonging to the same family as cocks and hens, they are exposed to affections peculiar to themselves.

In the first place, they are, beyond all comparison, infinitely

more difficult to rear than chickens, and before they have attained that age in which they can do without the cares of the mother, they cannot escape the critical changes of constitution to which we have alluded. Their sanguine temperament also exposes them to accidents unknown to the common fowls. In fact, when their tubercles swell and grow red, if the weather be variable, many of them succumb under this crisis. But none of them perish when the season is favourable, and care is taken to fortify them with bread steeped in wine, or a paste, into the composition of which, pepper, fennel, parsley, and hempseed should enter. Bleeding in the axillary vein is sometimes found to recover them in this case.

In their earliest youth, they are subject to a malady which announces itself by very debilitating symptoms, and they will perish in a short time, unless proper attention be bestowed upon them. The end of the feathers of the wings and tail of the black turkeys then becomes whitish, the plumage bristles all over the body, and they assume altogether a languishing appearance. On an attentive examination of the feathers of the rump, two or three will be found with their tubes full of blood. Extracting them will soon restore the animal to health and strength.

Turkeys are liable to many other maladies, of which there are various modes of cure; but we have already entered farther into such details than is consistent with a work of this kind. They belong more properly to rural economy, than to natural history.

The turkey has a crop and a gizzard. The length of the intestinal canal is nearly quadruple the length of the animal, taken from the point of the bill to the extremity of the crupper. It has two cœca, both directed from back to front, and which, taken together, make more than one-fourth of the intestinal conduit. They originate at the extremity of this canal.

C. Hamilton Smith Esq.r del.

Life. Honduras

HONDURAS TURKEY.

MELEAGRIS OCELLATA Tem.

London Published by G.B. Whittaker May 1.st 1823

The stomach is furnished internally with a cartilaginous tissue, less hard than that of the cock. The trachea widens a little into a funnel towards the upper larynx; in its interior is an osseous rounded tubercle.

To the short notice of the Honduras Turkey (of which the opposite is a figure) in the text, we must add the following particulars. It is of the same size as the common turkey; the bill is the same. The head and neck, as far as the middle, is bare. The forehead, crown, and about the eyes, bare, and carunculated and red. It has an elongated appendage on the forehead. The feathers of the back are fine blue, undulated, margined near the ends with black, and fringed at the tops with gilded brown. Over the shoulders is a large patch of copper-colour, with gloss. The wings are mottled, and mixed with blackish and white; the twelve feathers of the tail are marbled, and barred blackish and grey, with the ends gilded brown. The legs are stout, brown-red, and armed on the hinder part with a spur, an inch and a half in length, and pointed. The very great difference of plumage seems to mark this bird as a distinct species from the American turkey.

The PINTADO is the bird formerly known to the ancients under the name of Meleagris, or Numidian Fowl. We call them vulgarly in this country Guinea Fowl. We have already noticed the improper application of the classical name to the turkey, a bird not known in the old world before the discovery of America.

The pintado appears to have been rare enough, though it was generally known in the time of the ancients. It was formerly reared in Rome with much care, though the species was afterwards lost in Europe. These birds were not educated in any abundance in any country until after the Europeans visited the western shores of Africa, which are the peculiar habitat of the *Numida Meleagris*. From thence

they have been spread, not only in Europe, but many navigators have also transported them into America, where, according to the testimony of many travellers, they have found several races; but these races, or, to speak more correctly, varieties, are reducible to some trivial differences in the colour of the plumage.

Africa must be considered as the native country of the pintados. The first transported into Europe were termed fowls of Numidia, and were probably brought from Nubia to Rome, where, according to the testimony of Varro, they were very rare. The Romans held them in high estimation, and their flesh was considered a great delicacy at the banquets of great men.

On the western coasts of Africa, and principally towards the south, from the Cape of Good Hope as far as the Coast of Guinea, the wild pintados inhabit, in large flocks. They unite many broods together, fly in bands, and return at fixed hours to the springs or neighbouring rivers to drink. At sun-set they retire into the woods, and perch themselves on trees to pass the night.

The pintados are clamorous and troublesome birds. Their monotonous and disagreeable cry has been compared to a door grating on rusty hinges. It may be represented by the syllables *ceuk*, *ceuk*, pronounced forcibly, and with a rough voice. When these birds appear tired of this wretched noise, they then utter interruptedly a little cry which may be represented by the syllables *chi-wi*.

In the poultry-yard, the Meleagrides pursue all the species of fowl with which they happen to be placed, and maintain with them an obstinate and continual war. They are lively, restless, and impetuous; and though their flesh is excellent, they are so difficult to rear, and are such intolerant despots, that the attempt to make them propagate in menageries is not unfrequently abandoned. M.

Temminck has frequently and vainly tried to make them mix with pheasants in the woods, but always without success. The pheasants invariably dislodged, and gave way to these new and troublesome guests. Sometimes they would quit the neighbourhood altogether in consequence of the incessant pursuit of the Pintados. This obliged that gentleman to renounce his scheme of bringing up the Pintados in a wild state, though their flesh, when thus brought up, acquires a much more exquisite flavour, and is then preferable to that of the pheasant.

The size of the *Guinea Pintado* (*N. Melegris*,) is nearly equal to that of the domestic cock; its length, from the end of the bill to the extremity of the tail, being about twenty inches. The wild pintados in Africa are smaller than the domestic ones, and have the casque less elevated and more slender.

The young pintados are very difficult to be reared. Their weak constitution very much unfits them for propagation in our northern climates; they require continual attention, and all this is probably the reason why they are brought up in such small numbers. It is likely, however, that by proper care they might be turned to a profitable account, as their flesh is generally esteemed for its fine flavour, and their eggs are excellent. Those persons, however, who have poultry-yards well stocked with other fowls, should not attempt to educate the pintados. They will soon find that all the other birds will in a short time fall a sacrifice to them. Moreover, their disagreeable and discordant voices will render them very inconvenient in the immediate neighbourhood of a dwelling-house.

The pintados do not easily habituate themselves to seek food, like poultry, and require constant attention in this way. They must be regularly presented with their food once or twice a day, which consists of barley, millet, or buckwheat.

In the fields they eat grasshoppers, beetles, worms, and ants, and cut up and destroy the tender buds and flowers. They eat more than cocks and hens, probably in consequence of the less length of their intestines.

Ten females may be given to a single male pintado. The female lays usually at the end of May, or in the early days of June, and the eggs are generally from sixteen to four-and-twenty in number. The shell is very hard, of a yellowish white, spotted with small brown points. The female deposits them in a retired place, under some bush. She seldom sits with any assiduity, nor when the young are disclosed does she display any great affection for them. It is therefore found more profitable to have their eggs hatched by a hen. The incubation lasts three weeks, and three or four days. The young, as we before hinted, are very delicate and difficult to be brought up, requiring much attention in the article of food. They should be placed in a dry situation, where insects are not wanting. The casque on the top of the head, and the barbles of the lower jaw, are not to be distinguished before the birds are six months old. Towards that time these appendages begin to make their appearance, and the epoch is critical for the young pintados. They then become liable to maladies, from which they cannot be preserved but by great care and suitable nourishment.

A considerable difference between the common hen and the pintado is, that the intestinal tube is much shorter in proportion in the last, being but three feet long, without reckoning the cœca, which are each six inches. They proceed widening from their origin, and receive the vessels of the mesentery, like the other intestines. The largest intestine is the duodenum, which is more than eight lines in diameter. The gizzard is like that of the hen, and small gravel stones are found there as in that bird. Sometimes indeed nothing else is found there, the consequence apparently of the animal

having died in a languishing state, and passed the latter moments of its life without eating. The internal membrane of the gizzard is very much wrinkled, very slightly adherent to the nervous tunic, and of a corneous substance, or something very analogous to it.

The crop, when inflated, is about the size of a tennis-ball. The intermediate canal between the crop and gizzard is of a harder and whiter substance than that part of the intestinal tube which precedes the crop, and does not exhibit nearly so great a number of apparent vessels.

The heart is more pointed than it is commonly found to be in birds. The lungs are as usual. It has been remarked, however, in some subjects, that on blowing into the trachea, to put the lungs and air vessels in motion, that the pericardium, which appears more loose than usual, became inflated as well as the lungs. The trachea receives in the cavity of the thorax two small muscular cords, about an inch long, and two-thirds of a line broad, which are implanted there on each side.

These two muscles, adhering on one side to the bottom of the trachea, and on the other to the clavicles, are peculiar to all the species of gallinæ. They serve to keep the trachea fixed to the middle of the aperture of the thorax. The lower part of the trachea, and the lower larynx of the Pintados, differ much from these same parts in cocks and in pheasants. In the pintados the entire tube of the trachea, from the glottis to the distance of an inch from the lower larynx, is formed of complete rings, in the intervals between which are membranes. This part of the trachea is susceptible of being elongated or shortened by two pair of muscles, which accompany it through its whole length; but at the distance of an inch from the lower larynx the rings are broad, perfectly cylindrical, and soldered as it were one upon the other. On each side of this tube towards the lower part are five mem-

branes, which are followed by three rings of the lower larynx, from which the bronchiæ depend. These last are formed of flat semi-rings, which diminish gradually in length.

Of the *Crested Pintado* (*N. Cristata*), Buffon makes mention, but in vague terms. M. Temminck finds fault with the term crested, (or, as Sonnini has called the bird in French, *Peintade à Crête*,) because he thinks it might lead to the supposition that the bird had a crest or fleshy comb like the cock, whereas it bears a tuft of feathers. But surely this is something like hypercriticism, when we recollect how many birds of different orders bear this denomination, merely from the tufts of feathers with which their heads are crowned. This naturalist gives it the name of *Cornal*, which he tells us is its specific appellation in its native country.

It is smaller than the Meleagris; the bill is horn colour, surmounted by a bluish cere, in which are placed the nostrils. It has no guttural caruncles, but a small appendage of skin, or a longitudinal fold, is observable on each side of the lower mandible. The throat, top of the neck, and occiput are covered with a naked skin, which on the sides is of a deep blue, and, on the hinder part of the neck; it becomes greyish-blue around the ears, and assumes a tint of crimson-red on all the anterior part of the neck.

The Crested Pintado inhabits the burning regions of Africa; and in the country of the Great Namaquois, and in the interior of the lands of Guinea these birds live in vast flocks of some hundreds, composed of many united broods. They make the deserts re-echo with their discordant and sinister cries. Their piercing cries are most frequently heard towards the rising of the sun, and about the close of day. The manners of these birds are like those of the last and the following species, and they equally feed on all kinds of grains, worms, insects, and berries.

We have remarked, in writing of the Guinea Pintado, that

many varieties of it have been observed which have been described by authors, either as distinct species, or as races, but whose existence may be attributed to the influence of the various climates into which these pintados have been transported. Perhaps it would even be more natural to believe that these varieties are the result of mere accident, of a vicious constitution, or a degradation produced by the domestic state.

There are, however, species in which the principal characters are so different, whose size, as well as other attributes, have so little analogy with Meleagris, that they must be admitted as distinct. Finding them thus in the wild state is a corroboration of the truth of this opinion.

One of these we have just noticed; the other is the *Mitred Pintado.*

This species was first pointed out by Pallas. Its manners and habits are similar to those of Meleagris. Its cry differs little from that of that bird, and is equally continuous and discordant. In size it is alike, measuring about twenty inches. In the adult state, its casque rises about an inch and seven lines above the cranium. In young individuals, it is less curved backward, and less angular. Two small membranes, at most two lines in breadth, have their origin towards the angle of the upper mandible of the bill, and another of as little breadth directs itself along the naked part of the throat. The feet are more robust and muscular than in Meleagris. The disparities in the plumage are equally great, but unnecessary to be insisted upon here.

The *Mitred Pintado* has been found in the wild state in the Island of Madagascar. It is to be presumed that it is equally extended over the continent of Africa. An individual in the possession of M. Temminck came from the southern part of that quarter of the globe.

If these two last mentioned species have not been reduced

to a state of domestication as perfect as that of the Guinea Pintado, it must not be attributed to their having a wilder nature, or manners altogether different from that species. They are just as easily reducible to the subjection and use of man, but it does not appear that any efforts have been made for the purpose. Such indeed is his indolence, that when he has long been in possession of certain animals, the first attempts to domesticate which are forgotten in the night of time, he will seldom trouble himself by extending his views to analogous species yet unreclaimed, although he might thus considerably extend the sphere of his enjoyments and his utility. The existence of these birds so far in the interior of the country, long retarded their discovery; and the Greeks and Romans never possessed these species in a state of domestication. It is certain that no ancient author has mentioned them; while the Meleagrides, inhabiting the north-western line of the African coast, could not escape the attentive researches of those nations, whose labours have descended to us by inheritance, and continue even to the present hour a source of utility and enjoyment to the European world.

We arrive at length at the great family of the PHEASANTS, beginning with the subgenus, or, perhaps we should rather say, genus of the COCK (GALLUS.)

Of all the genera of birds, the history of which has been transmitted to us by naturalists and travellers, none has excited so many repeated discussions and debates as this in relation to the primitive stock, or species from which all the races of our domestic cock have been derived. It would be difficult to find a subject on which the opinions even of the scientific and judicious have been so diversified and conflicting.

To determine the original country of that species, which should be considered as the type of our village cock, and

which is still the nurse of its purity and independence—to establish the characters proper to the primitive stock—to indicate the different alterations which ages of domestication have produced in this primeval species—to assign to the various races their genuine origin—to illuminate the chaos of darkness with which time and human caprice have obscured the history of their propagation in almost every country of the globe—these are problems in the science of nature, to the solution of which the highest interest is attached.

It is difficult, if not impossible, to resolve all these questions. The domestication of the cock ascends to times of such remote antiquity, that it is hopeless to determine its era, and more than probable that the primitive species will never be ascertained.

We shall cite, however, the various opinions of the principal writers on this subject, confront them together, refer their descriptions to primitive species which are known, and thus endeavour to throw some light on the darkness in which the origin of the races of this bird is involved. We shall notice new species in the genus, and mark the generic characters, according to the forms proper to all the species which compose this family.

M. Temminck separates the cocks from the genus *Phasianus*, and forms them into a separate and isolated genus. He considers the characters of phasianus little applicable to the great majority of the cocks: the caudal feathers of the pheasants are long, narrow, and vaulted; the two intermediate quills are constantly more elongated than the lateral; the cheeks are covered with a tissue composed of small feathers exceedingly short, and resembling velvet. The pheasants have also a very delicate constitution, equally sensible to the casual variations of the weather, and to the influence of a cold climate. It is only by the most assiduous

care that they can be brought to propagate in a state of domestication.

On the other hand, the caudal plumes of the cock are very broad. These birds have frequently two feathers pendant in an arch, along each tier of a tail, which is for the most part vertical; the head has constantly a part denuded of feathers, covered by a flabby skin, which is sometimes elongated in a single flowing barble, sometimes in two appendages, and which sometimes surmounts the head in the form of a fleshy crest. In others, the naked skin only occupies the cheeks. These birds, beside, have a much less sensitive constitution than the pheasants, and are more easily accustomed to every variety of temperature, a fact, which their existence in almost every country of the earth, even in the coldest, most irrefragably proves.

Such are the principal reasons which have induced M. Temminck to separate the cocks from the pheasants.

On the generic characters of the text we must enlarge a little. The bill is moderate, conical, and arched; the nostrils are basal, lateral, and half-closed by a vaulted membrane; the toes are four, three in front, one behind. There is a membrane which reaches about as far as the first phalanx of each toe. There are hooked spurs on the tarsi; part of the head is naked, as well as the front of the neck; a fleshy crest, most generally, on the head, and prolongations of the same nature under the bill. The first three quills of the wings are the least long, and the external one very short. The cry is similar to that of the domestic cock.

To these characters may be added, that almost all the cocks, have a certain family resemblance and peculiar air, which, without regarding the difference in the form of the feathers, distinguishes them from the true pheasants. Their attitude is proud; their gait elastic; the form of the body,

and the manner in which they erect the neck are peculiar. In those characters they differ from the generic pheasants. The latter appear more elongated, from carrying the neck lower, and extending it forwards, in a position more or less horizontal.

M. Temminck does not agree with those naturalists who think that the most part of the races of our domestic cocks issued from a single source or type, and that all the differences which we observe in the size and peculiar forms of these birds, owe their origin solely to the influence of climate, to domestication, to the capricious modes in which these varieties have been crossed, or, in fine, to simple chance,—a word which, if it have any meaning, means nothing but a cause of which we are wholly ignorant. It certainly appears more reasonable to admit in this genus several sources, several primitive species, the descendants of which form our peculiar races, preserve characters proper to their originals, and among which we shall not fail to find individuals pure and undegenerated. Many primitive species of the cock, unknown until the present day, and whose descendants we do not possess, afford a very sufficient ground for this opinion.

There are few facts in Natural History so difficult to determine with precision as to point out the places which the species of our common cock inhabited at first, in a state of freedom and independence. The speculations of many writers are much better calculated to lead us into error, and throw a veil of obscurity over the origin of these birds, than to guide us in our researches. Those who, like Buffon, Sonnerat, and others, believe that our domestic cocks and hens all originated from a single source, will by no means adopt as authentic the indications afforded on this subject by different travellers. Sonnerat rejects the opinion of Dampier, on the existence of wild hens at Pulocondor, at Timor, and at St. Jago, saying, that this traveller had not made a

particular study of natural history; as if, remarks Sonnini, it was necessary to have a very profound insight into this science to distinguish a cock or a hen from every other bird.

The same writer will repose no greater confidence in the testimony of Gmelli Carreri, and Morelle: and he places in the rank of mere conjectures what Sonnini has advanced respecting the existence of wild cocks in the forests of South America.

But facts are stronger than theories; there is no reason why we should not believe in the existence of wild hens in the islands of Pulocondor and Timor, since M. Temminck received wild cocks, from Sumatra, Java, and Ceylon. These differed, in many respects, not only from those found in the Indies by Sonnerat; but also from all the races which we cultivate in a state of domestication.

If then, as is probable, Dampier was not deceived, in speaking of the cocks, which he saw, and that the primitive species which we shall notice after M. Temminck are true cocks (of which no doubt is now entertained), there is no obstacle to the establishment of distinct species in this genus, which, though natives of distant countries, might unite with facility in domestication, and produce in this state some fruitful individuals, which would preserve the characters peculiar to the original stock, and others which would partake of the characters of many, according to the manner in which the races may have been crossed.

Our common cock, according to M. Temminck, seems to have originated from the *Jago Cock* (*Gallus Giganteus*), a very large wild species, which inhabits the island of Sumatra, and from the species *Bankiva*, another primitive cock, found in the forests of Java. These two species appear more particularly entitled to this distinction: 1st. in consequence of the resemblance of their females to our domestic hens; 2nd,

with reference to the size of our village cock, which is intermediate between that of the Jago and Bankiva; 3d, from the nature of the feathers, and the forms and distribution of the barbs, which are absolutely the same in our domestic cocks; 4th, because it is in those two species alone that the females are provided with a crest and small barbles, characters not found in any other of the primitive species which are known.

As the influence of domestication in the cock has produced alterations in the entire forms of the body and of the fleshy appendages, it is difficult to indicate the races which owe their origin to the same stock or source. M. Temminck seems to think that the race of the *Paduan Cock*, and that of the *Sancevarre*, have much analogy with the species Jago, while that called the *Turkish Çock* has more relations with the species Bankiva. The races most approaching those two primitive species, have experienced the fewest alterations from domestication, and they may have produced, by inter-alliance—1st, the race of village cocks with crest and barbles; 2nd, that of tufted cocks, with small crest and barbles, in which those juices proper to form the fleshy appendages, appear to have been expended in the production of the tuft of feathers which ornaments the head; 3d, all those races of cocks, whose tarsi and toes are more or less covered with feathers, whose origin must be attributed to superabundance of nutriment, which has in this instance produced feathers on the legs, as it has formed a tuft on the head of the crested cock; 4th, the race of Hamburgh cocks, which have the head hooded, and the feathers stretched back over the ears.

These races, and a considerable number of others, by repeated inter-alliance have produced an infinite number of varieties: and doubtless many more might be produced, and other permanent races be formed, by care and attention in

crossing the breeds, and employing individuals of the distinct and foreign species.

Many of the birds which compose the gallinaceous order, appear less difficult to be brought to unite with strange species than those of any other order. In none do we observe productions equally singular and equally various. From the great majority of the pheasants, mongrels may thus be produced; all the hoccos will couple together in a state of domestication, the pheasant will ally with the cock; this last with the turkey, with which the hoccos born in the domestic state will also unite. It appears, in fact, very possible to produce mongrels from the major part of those gallinæ, which are susceptible of domestic cultivation.

It remains to inquire whether any true species of gallus are native to America in the wild state; and whether the cocks which are found in the solitary forests of the southern division of that mighty continent, do not derive their origin from those which were transported from the old world, as well as those which the Indians rear around their dwellings.

There appear no very particular reasons for rejecting the possibility of the existence of wild cocks in America. It cannot be said that since these birds inhabit India, China, and the Islands of the Eastern Archipelago, in a state of freedom, it must follow that America possesses none of them in the same state. The relations of creditable travellers, and of ocular witnesses, cannot permit us to doubt of the veracity of what they have advanced, until better founded proofs, and more recent observations, shall oblige us to reject it.

The Jesuit Acosta is the first who assures us that hens existed in Peru before the arrival of the Spaniards, and that they were called, in the language of the country, *Talpa*, and their eggs *Ponta*.

M. Sonnini thus expresses himself on the subject:—"Tra-

velling in the sombre and solitary forests of Guiana, when the dawn first commenced to shed a less lugubrious tint, in the midst of those immense trees, which never fall but beneath the axe of time, I have frequently heard a cry perfectly resembling the note of our domestic cock, but less powerful and sonorous. The considerable distance from all inhabited places could not permit us to believe that this crowing, which the companions of my journey heard very distinctly, was produced by domestic birds, and the Indians by whom we were followed told us that it was the cry of wild cocks. In one of these journeys, I myself beheld on a mountain a bird about the size of a pigeon, with brown plumage, bearing on its head a fleshy crest, having the wings short, and the tail arranged exactly like that of the hen, whose port and gait it altogether exhibited. I was able to examine it very well, and it did not appear very wild or shy; the negro who carried my fusee had stopped at some distance, and when he rejoined me, the bird was flown into the depth of the forest, and we searched for it to no purpose.

"This fact, the crowing of the cocks which we heard in the woods, and the knowledge of the wild cock possessed by the natives, left no doubt on my mind, respecting the existence of these cocks in South America; and I have now put forth what I had the opportunity of ascertaining, without any other pretension than to make known, a mere fact in the natural history of the gallinæ."

Sonnini, moreover, quotes the testimony of a colonist of Guiana, who had acquired a vast deal of local knowledge, concerning that country. M. Salines, major of militia in the colony of Cayenne, relates, that in an excursion which he made into the great forests of Guiana, in 1776, he met, and had quite sufficient time to consider, a bird conformed altogether like a hen, similar to the one which Sonnini himself had seen, with the exception of its reddish colour, a little

different from the brown which tinted the plumage of the other.

Captain Stedman has observed, that the Indians of the interior of Dutch Guiana rear a very small species of hen, which appears natural to that country. His words are:—

"As for the poultry, nothing can thrive better; the common fowls are here as good and plenty as in any country, but smaller, and their eggs differ in shape, being more sharp pointed. A smaller species of the dunghill kind, with rumpled, inverted feathers, seems natural at Guiana, being reared in the inland parts of the country by the Indians or natives."

Captain Pages says, that among the species of birds with which the woods of the island of Samar, the most eastern of the Philippines, abound, there is a great quantity of wild hens, which differ from ours by their strong and thick-set shape, and their short feet. They are of a grey colour, picked out like the partridge.

It appears then, probable, that wild cocks are equally found in both continents. There appears no reason whatever to reject the testimony of these travellers.

It is remarkable, that the wild hens of the East Indies do not differ among themselves in the colour of the plumage, like our domestic hens. The females too of the primitive species, all resemble each other individually; this is by no means the case, as is well known, with our domestic hens; the differences between one individual and another sometimes extend even to characteristic attributes, such as the absence of crest, of barbles, great difference of size, &c. This is a strong fact against the opinion of Buffon, who considered white plumage to be the attribute of the primitive race. That eminent naturalist imagined, that the hens originally white became varied from white to black, and assumed all the intermediate colours in succession.

It appears more probable that the primitive hens are brown, red, or grey, indifferently, and that the black and white colours are among the consequences of domestication. This opinion is based upon the fact, that all the wild hens which have been observed, whether races or species, have the intermediate colours. The greatest number of our domestic hens are in the same predicament, when derived from hens of all colours, and the white or black varieties are perpetuated only by preserving the breed unmixed.

There are, however, races, or, to speak more correctly, species of the cock, the primitive stock of which must, indubitably, have been white. We remark in the downy hens that white constantly predominates, and that when any attention is paid not to cross the races, this colour is easily preserved in all its purity. It may even be possible, though it must be confessed that this is only conjecture, that our common hens, whose plumage is entirely white or black, may owe their origin to a race crossed either with the species primitively white, or with those which have the plumage invariably black.

It is impossible to retrace the different original species among our common hens. Chance and design have multiplied and crossed them, to such a degree that it would be useless to undertake the task of separating from among them the different primitive races. The impression of all races confounded together, will be found in any large number of our domestic hens. Some are very large, some small, others middling. There are black, there are white, there are of all colours. Some are to be found with double crest, some with single, some without any. Some with a notched crest, some with it smooth and rounded. Some display frizzled feathers, some have the plumage in the ordinary style. Some are rough-

footed, some smooth; and, in fine, individuals may be found which unite the characters of many different races.

The *domestic cock* is that bird over which, above all others, man has acquired the most ample dominion, the most complete empire. This conquest, however, was, in all probability, not achieved without much difficulty. To reduce to entire domestication the wild inhabitant of solitary woods, was not among the number of the easiest enterprises. It has, however, been crowned with the most complete success. The epocha of this early domestication of the cock and hen, is lost in the night of time. In no work of antiquity do we meet with the slightest indication respecting the migration of these birds. It is not at all in the order of probabilities, that heavy animals, the conformation of whose wings and tail, affords no facilities for a flight of any long duration, or for traversing the seas, should have been able to transport themselves, of their own inclination, into countries far remote from the soil where they were born in independence. What instinct could have operated on these birds, to determine them to quit the solitary woods of torrid climes? All birds that migrate at stated seasons, quit our climates on the approach of winter. It is not merely the refrigeration of the atmosphere which determines these migrations, but also the failure of those aliments by which life is supported. But a similar necessity could not have constrained the cock to abandon the latitudes of Southern Asia. Had such been formerly the case, the same causes would still subsist, and we should see the wild cocks of Java, of Sumatra, of Ceylon, and of Hindostan performing regular and periodical voyages.

If then, as there is every reason for believing, the temperate climates of Asia, and the countries of Europe, did not in ancient times possess the cock in a wild state, we must ascend to the earliest epoch of navigation, and presume the

domestication of this useful bird to date from those remote periods. Under the reign of that great prince, who ruled with so much glory over the tribes of Israel, we have seen that the peacock constituted an acquisition worthy of being enumerated in the list of riches imported into Judea by his adventurous fleets. As this discovery of the peacock was made in the time of Solomon, it cannot be deemed very extraordinary to suppose, that the cock, which inhabits the same countries as that bird, should about the same time have attracted the attention of the Hebrews.

Be this as it may, it is quite certain that the cock, as well as the peacock, has been transported by man into the different countries in which these species exist at the present day in a state of domestication. They are now propagated through every country of the globe.

The cock and hen are, of all domestic birds, those which to us are of the greatest utility. They pay us with usury for all the cares expended on their reproduction. But man, not contented with the profit and enjoyment which he can innocently derive from these birds, has made them, by a capricious and cruel taste, the subject of his barbarous amusements. Cockfighting, so common in the East, has also constituted one of the refined diversions of the civilized nations of the West. It is with shame we own, that our own countrymen have been the most prominent patrons of this low, cruel, and irrational sport. It does not, perhaps, at present engage, to so great an extent as formerly, the patronage of the high born, and the fashionable. It does not flourish, as it once did, under the auspices of kings. It is remarkable enough, that some of the most worthless and imbecile of the English princes have been precisely the greatest encouragers of this sport. Henry the Eighth established a cockpit; James the First delighted in the amusement, and it was a favourite recreation of his profligate grandson, Charles the Second.

To compensate for this, we have the example of our glorious third Edward, who prohibited cock fighting, under severe penalties; and of Oliver Cromwell, who, whatever his political or religious adversaries may have objected to him, was neither a coward, a fool, nor a tyrant. The sport, however, is on the decline: and we might congratulate our fellow-countrymen on this symptom of improvement, if the fashionable taste had not taken another turn, and the favourite diversion become, not the pitting of cocks against each other, but of men! This will, doubtless, in its turn, give way to some other criminal absurdity, equally worthy of reprobation, and its extinction afford another ground for mole-eyed philosophers to felicitate the world on the march of human intellect and virtue!

It would be superfluous to enter into any description of the common cock and hen, or to notice the different varieties in their plumage, which are innumerable. It is sufficient to observe, that, as with the vast majority of birds, the female is smaller and less brilliantly plumed than the male, in all species and varieties.

The stomach of the cock is singularly muscular, and furnished internally with a tunic almost cartilaginous. The action of the muscles produces a friction in the interior of the stomach, which rapidly comminutes not only aliments of every description, but will in a few hours wear down the surfaces of globes of glass, and reduce the whole to powder; triangles too, of glass, even with greatly acerated points, are blunted in a very little time; nay, even points of steel, implanted in a ball of lead, are equally worn down by this violent action of the muscles. In the works of Spallanzani, the proofs of this may be found, in the account of the various experiments performed by that philosopher, on the digestive organs of the cock.

Properly speaking, the cock has three stomachs; the first,

is the gizzard; the second is observed a little lower in the dilatation of the œsophagus; and the third is the muscular pouch which we have just alluded to. This last stomach, according to Bechstein, is composed of four principal muscles, which produce the most active mechanism on this viscus. The intestinal canal measures more than five times the length of the bird. The two cœca are six inches long, and take their origin at the spot where the colon is united to the ilium. The testes of the male are of greater volume, in proportion to the body, than in any other bird. The trachea is widened a little, funnel-wise, towards the upper larynx; it narrows sensibly towards the lower larynx, which is very much compressed. The lateral parts of this last are furnished with a single membranous piece, which is not supported by cartilaginous rings; the cartilage, which traverses the larynx internally, instead of being soldered, as in the turkey, in the middle of the last demi-ring, is suspended to two triangular pieces, attached under the anterior and posterior parts of this ring. The bronchiæ have not entire rings, and their internal part is furnished with a membrane. The entire trachea appears capable of being elongated or shortened in a very sensible degree, and the lower larynx equally capable of being compressed and dilated according to the sounds which the animal wishes to produce. It is probable, that the very shrill tone of the cock is produced by this compression of the lower larynx. In the interior of the top of the trachea, immediately at the aperture of the glottis, there is a very slight protuberance, but no socle, or osseous triangle, as in the pauxis, the hoccos, and penelope.

Though the bringing up and keeping of cocks and hens do not require very assiduous care, yet it is quite certain that if a proper economy be not observed in the education and feeding of these birds, the expense attending upon them will considerably exceed the profit. It is to farmers only, and

inhabitants of the country in general, that these birds offer real advantages; they should in some measure be abandoned to their chance, and left to provide for their own subsistence, if any profit is intended to be derived from them; no proprietor should keep on his domain, a greater number of hens than he can feed abundantly with the refuse of his corn.

To preserve these birds in health, and make them contribute to the greatest profit of the proprietor, it is necessary to chuse for them a well constructed roost, placed as near as possible to a coach-house or stable, and, still better, above them, to preserve them from the excessive cold of winter, for hens cannot support great cold, or abundant snow. Humidity, and marshy grounds, intersected by too much stagnant water, are equally injurious to them. The want of proper care in their establishment will soon show itself by the small quantity of eggs, the irregularity of the broods, and the languishing state of the chickens.

In large parks, hens may be entirely left to themselves, without meddling at all with the care of their subsistence, or any thing else relating to them. Their flesh in this semi-wild state, acquires a very delicate taste, and exquisite flavour. In Germany, many men of rank suffer the hens thus to multiply, in the preserves, where they keep their pheasants, giving them only from time to time some food in certain parts of the forest, particularly when the earth for any length of time is covered with thick snow. These birds lay their eggs, and bring up their young in the woods. These last soon acquire a still wilder nature, and are always inferior in size to cocks and hens that are entirely domestic; they do not grow so fat, but their flesh is far more agreeable. The plumage also, after some generations, is affected by this demi-savage state; the feathers are in general less broad, the tufts and tail not so well furnished; the latter is less round, and its form approaches considerably to that of the wild species,

Bankiva, in the island of Java. This is an additional corroboration of the opinion which would refer our domestic races originally to that species.

The cock exhibits a vast deal of care and even solicitude about his females; he seldom loses sight of them; he conducts, defends, and menaces them, proceeds in search of those that stray, and never gives himself up to the pleasure of feeding until he sees them all around him. Judging by the different inflexions of his voice, and by the different expressions of his mien and gesture, we can scarcely doubt that he addresses them in different sorts of language; when he loses them, he gives signs of regret. Though not less jealous than amorous, he never maltreats any of them; his jealousy is inflamed only against his rivals; if another cock makes his appearance, he never gives him time to make any attempt: he rushes upon him, with eyeballs flashing fire, and bristling plumes, and an obstinate combat takes place, until one or the other falls, or the invader is forced to retire from the field of battle.

We insert here, for the amusement of our readers, the singular description given of the cock by Pliny:

"After the peacock, the birds which are most sensible to glory are those active sentinels which nature has produced to rouse us from our matin slumbers, and send us to our daily occupations. They are acquainted with the stars, and every three hours they indicate by their crowing the different periods of the day. They retire to repose with the setting sun, and from the fourth military watch they recall us loudly to our cares and labours. They do not suffer the day-beam to surprise us without timely warning. Their crowing announces the hour of morning, and the crowing itself is announced by the clapping of their wings. Each farm-yard has its peculiar king, and amongst these monarchs, as amongst princes of our own race, empire is the meed of victory.

They appear to comprehend the design of those weapons with which their feet are armed. It is not uncommon for two rivals to perish in the combat. If one be conqueror, he immediately sings forth his triumph, and proclaims his own supremacy: the other retreats and disappears, ashamed of his defeat. The gait of the cock is proud and commanding; he walks with head erect, and elevated crest. Alone of all birds, he habitually looks up to the sky, raising at the same time his curved and scythe-formed tail, and inspiring terror in the lion himself, that most intrepid of animals. Some of these birds seem actually born for nothing but warfare and battles; some have rendered the countries which produced them famous, such as Rhodes and Tanagra. The second rank is assigned to those from Melos and Chalcis—birds truly worthy of the homage they receive from the Roman purple! Their repasts are solemn presages; they regulate daily the conduct of our magistrates, and open or close to them their own houses. They prescribe repose or movement to the Roman fasces; they command or prohibit battles; they have announced all the victories gained throughout the universe; in a word, they lord it over the masters of the world. Their very entrails and fibres are not less agreeable to the gods than the richest victims. Their prolonged notes in the evening, and at extraordinary hours, constitute presages. By crowing all night long, they announced to the Bœotians a celebrated victory over the Lacedemonians; thus did the diviners interpret it, because this bird never crows when he is conquered."

The cock has a full body, a gait slow and firm. His glance is lively and animated, his air proud and independent, without any thing menacing or ferocious. He is a being confident in his own strength and courage, conscious of his own worth, but not disdainful of others. Certain of his own superiority, and of the right which he assumes, he knows

how to maintain them in every thing of importance, and how to relax in matters of minor consideration. Though a despot, and a lover in the midst of a numerous seraglio, he is yet an attentive husband, and a tender father. The females and the young which they conduct, are to him a people that must obey, but must be governed with mildness. Their weakness and his strength secure submission on the one hand, and protection on the other. For himself, he desires no food but what is sufficient to support his strength; and if he meets with any thing delicate, he touches it not, but calls his family around him, who answer immediately to the voice of a master who summons them, and of a husband and father who invites. He shares his acquisition between the mothers and the children, replying to their murmurs of gratitude by low and gentler accents. He protects his progeny by acting either on the offensive or defensive against every enemy that can hurt them. He combats and repels all intruding animals. With the other birds of the poultry he acts as a master, and obliges them to keep at a proper distance from his establishment. But it is against one of his own species and sex that he exhibits the greatest irritation; with him, he will contend until either his own strength fails, or his adversary flies or is destroyed. If successful, he claps his wings, and utters several shrill and reiterated crows, in token of his triumph.

The cock is of a vigorous and warm constitution, and one will suffice for fifteen or twenty hens. The choice of a cock is however of great importance to those who are engaged in the breeding of poultry. He is judged to possess all the requisite qualities when he is of a fine shape, but middle size; when he holds his head erect, has a lively and animated eye, a voice powerful and clear, and a bill thick and short. The comb should be of a bright and polished red, the wattle membranous, of a considerable volume, and as highly coloured as the crest. The chest should be broad, the wings strong,

the plumage, black or very dark red, the thighs very muscular, the legs stout, and armed with long spurs, the toes provided with claws, slightly crooked, and strongly acerated. He should also be alert, petulant, ardent in caressing, and prompt in defending the females; attentive in soliciting them to eat, in keeping them together during the day, and assembling them in the evening for rest.

The cock begins to propagate at three months old; his vigour lasts in perfection only three years, though he may live to the age of ten. The cocks of larger species and varieties are more slow in their development, and their prime in all probability lasts longer. When the cock becomes superannuated he must be turned out, as no longer worthy to figure in the seraglio. The handsomest and bravest of all the supernumerary young cocks in the establishment must be chosen to succeed him.

When there is any hesitation between two of these cocks, equally handsome and strong, the best mode of deciding, says M. Parmentier, according to *the advice of a lady*, is to make them fight, and give the preference to the conqueror. The hens appear to be of the same opinion, showing, like other females, a decided inclination in favour of the strong and courageous of the other sex.

When the empire of the poultry-yard is divided between two or more cocks, peace does not long subsist among them. Their restless, ardent, impetuous, and jealous character, soon breaks out in frequent and bloody quarrels; combat follows instantaneously on provocation; the two adversaries stand opposed to each other with bristling plumes, keeping the neck extended and the head low; they observe each other in silence, with fixed and sparkling eyes; on the least movement of either, they erect themselves, dart upon, and tilt their bodies against each other; this manœuvre is repeated until the most adroit and the strongest has torn the comb of

his enemy, overwhelmed him with blows of his wings, or gored him with his spurs.

Some cocks are of an excessively peevish and quarrelsome disposition; they beat and annoy the hens, and, not satisfied with their own lot, are continually disturbing the establishments of their neighbours. The mode of reducing these refractory subjects to quietness is simple; the foot is passed into a piece of leather, cut round to receive it; they then become as quiet as men who have got irons on their hands, feet, and neck.

The cock is fond of cleanliness; he is careful of his dress, and is often seen engaged in cleansing, combing, and polishing his feathers with his bill. If like the nightingale, or the warbler, whose melody is created by love, he has no ambition to be distinguished by the excellence of his music, it is certain that he is very fond of exhibiting the strength, the sonorousness, and the compass of his voice. After crowing, he listens to hear if he is answered, and if another cock should reply, he recommences immediately, and appears to defy him to raise his voice higher than his own. This emulous cry, repeated by all the cocks of a village, on an obscure night, has often struck the ear of the wandering traveller, and proved the happy means of directing his steps aright.

It is pretty generally imagined, that the cock is not designed by nature to share in the solicitudes of incubation and the education of the young; but on examining matters a little more closely, we are forced to relinquish this opinion. In fact, if the cock in a wild state did not attach himself to a single female, how could she cover, and at the same time be obliged to proceed in search of food? The impossibility of the hen doing these two things without the assistance of the cock, proves that, in the state of which we are speaking, she receives that assistance. How, then, if this be the case, has

the cock lost his habits and manners? By domestication and slavery, which are often found sufficient to obliterate and distort the strongest instincts of the brute creation; but it does not appear to be true, that the cock has entirely lost all these sentiments. It may be observed, that he will sometimes draw one of the hens into a corner, remove the straw which he finds there, make a nest, settle himself in it, and seem to invite the female to lay there, and point out, as it were, the convenience of the place. He will sometimes perch on the edge of the nest where his favourite hen is laying, and offer her his services, appearing to forget and sacrifice for her all the other hens, and, in fact, to comport himself altogether like those birds which are monogamous. It may indeed be remarked, that he always evinces a peculiar predilection for one of the young hens; he is constantly caressing, feeding, and paying her every kind of attention. The hen too seems sensible of this preference, always accompanies him in his search for food, is the first to come at his call, and receive from his bill the grain or seed which he has found. We may easily conclude that she would follow him willingly, if he thought proper to escape from captivity, and live with her in a state of nature, remote from the haunts of men, and from other females of her own species.

The arguments in the last paragraph are taken from M. Parmentier; but we confess we cannot quite agree with him in his conclusions. The cock, cannot, in any wise, be considered as a monogamous bird, any more than any other bird of the order to which he belongs, and which are, all of them, polygamous; this must of necessity be the case, from the vast superabundance of females in all the gallinæ; neither can any stress be laid on the sort of *à priori* argument, which he draws from the supposition of the hen's situation in a wild state, and the necessity of her being fed by the cock when sitting on the eggs. There are many species, not even

polygamous, in which the hen is obliged occasionally to quit the eggs to seek for food—many in which the cock never feeds either her or the young. The facts cited by M. Parmentier, from observation on the domestic cock, appear to us to have as little weight as his hypothesis concerning the wild one. If the cock be observed to scrape straw together, and rub himself in it, it is no more than what cocks and hens continually do, in heaps of dust, &c., when they have no thought of incubation, but merely from their pulverating instinct. A strong imagination may see the making of a nest in this operation; but the probability is, that the cock performs it only to rid himself of the vermin with which he, like other birds, is occasionally annoyed. That he shows a preference to some hens above others, is certain enough; and also prefers the young and handsome hens, while he cordially detests the old ones. It may even happen, under certain circumstances, that he may attach himself to a single one in preference; but this is only temporary, and very different from the decided choice, and permanent attention to the female, shown by all truly monogamous birds; besides, we all know how easy it is to magnify facts, which appear to make in favour of a preconceived and cherished theory.

Cocks and hens, like other organized beings, exhibit, occasionally, monstrous productions, which have drawn the attention of the curious: chickens with two heads, cocks with four feet, &c., have been often seen. A most singular production of this kind is described by M. Schwartz, in a periodical work, printed at Berlin, entitled *Brennu*, in 1803.

"A Jew, in 1802, exhibited for money, at Posen, in Poland, a hen, with a human face, which was hatched in a farm, near Wryesnier, and which he had received in payment of a small debt. He declared, that another chicken, altogether similar, had been in the same brood, but that it died soon after its birth. The animal which he exhibited,

and which I have myself seen, was alive, and in excellent health. It had attained its full size, for it was more than a year old. Its body was covered with feathers of different colours, and it resembled other hens in every respect, except the head; this was of the usual size, but denuded of feathers, and covered with a bluish skin. The cavities of the eyes were completely formed like those of human eyes; they were surmounted by two small arches of down, which formed very regular eye-brows. The upper part of the bill was shorter than usual; it had but one blunted point, and the nostrils were underneath it, so that, although it was horn, it presented the perfect resemblance of a very well made nose; below this nose, was a very regular mouth, with lips; two rows of very white teeth, close and pointed, and a rounded tongue, completed this most extraordinary *lusus naturæ*. This resemblance to a human countenance had something in it extremely disagreeable, and even horrid; but it was perfect, and had no need of the assistance of imagination to be recognized."

An account of another phenomenon of this kind was published in the *Gazette de Santé*, in 1810. The resemblance to a human countenance was not quite so perfect as in the last, but was nevertheless very obvious:—"The place where the bill should be," says the writer, "presents a human profile, resembling that of an old woman; the bill is entirely wanting; the jaws are shortened, so as to terminate in a point, where the nostrils are placed in other hens; they are covered with flesh, and resemble lips. The crest, on a face view, forms a kind of nose, so much the more remarkable as the nostrils are placed at the point where this nose terminates and are united to the jaw. A fleshy excrescence, not seen in other hens, is attached below the under jaw, and represents a sort of chin; this chin is naked, with the exception of a few hairs, and the naked skin which forms it is prolonged

as far as the ears, as in the common hen. The eyes are round and black, and surrounded with an iris of a very lively red. Under the eyes the skin is flesh-coloured, mingled with blue, and naked, with the exception of a tuft of hairs, forming a kind of mustachio, towards the ears, and concealing the aperture." This hen was found in the district of Belef, in the government of Tula, in Russia, and sent by the Governor to the Imperial University of Moscow.

There is one monstrosity, more common than others, in these birds, and which is the production of art; it is the horns, sometimes seen on the head of the cock. They are placed there by a process, which consists in making an aperture in the crest of the cock, and introducing by this wound, and applying on the cranium, the spur of a pullet. The prodigious growth which takes place in this spur, after the union which it has formed with the bones of the head of the cock, proves incontestably the similitude of animal grafting with that of vegetables.

The races of hens, to the multiplication of which a preference should be given, are those which furnish eggs most abundantly, and whose flesh is the most delicate. These two advantages, and especially the first, are found in the common hens. It is principally then with this species that the poultry-yard should be peopled.

The hens to be chosen should be of the middle size, of a black or brown colour, of a robust constitution, with a thickish head, lively eyes, pendant crest, and bluish feet. Those must be rejected which have large spurs, which scrape much, which crow, and call after the manner of cocks. Likewise those which are fierce, quarrelsome, and peevish; for these rarely lay eggs, are negligent in incubation, destroy, break, and sometimes eat their own eggs.

The hens which are too fat, and the old ones, are to be removed from the poultry-yard. The first seldom lay, and

their eggs are not good. The second, which may be known by the roughness of the crest and feet, have ceased to lay altogether.

After the common hen, that variety which holds the first place in fecundity is the tufted or crested hen, which is more delicate eating than the common hen, because, laying fewer eggs, she grows more fat.

Hens are of a lively, petulant, and violent character. They quarrel and fight continually amongst themselves. Their inclinations are sanguinary, and manners barbarous. They cannot behold one of their companions weak and languishing without insulting her. If blood flows from the wounds which she may have received, the entire troop will fall upon her, and tear her without mercy.

Reaumur mentions a circumstance which strongly marks the ferocity of hens. He had shut up two of them with a cock; these three individuals lived for a certain time in the most perfect union; all of a sudden, the hens became disgusted with the cock, attacked him, and after five or six days of persecution, they succeeded in killing him. Surprised at such extraordinary conduct, Reaumur became curious to know its cause. He therefore put in several cocks successively to those hens. Their fury was rekindled against each of them, and they would all have experienced the fate of the first, if they had been left a sufficient length of time to lose all their blood and strength.

Two things are singularly worthy of remark in this adventure. The first is, that the cocks, which were strong, hardy, and robust, and could easily have reduced thirty refractory hens to obedience, did not attempt to defend themselves, or even to escape from the violence of the females. The other is, that those hens which were so mischievously inclined when shut up, became perfectly tranquil as soon as they were let

loose, and agreed perfectly with the cocks which were apportioned to them.

Hens are the easiest of all birds to be managed as to aliment. All nutritive substances agree with them, even when buried in a dunghill. Nothing is lost. They are occupied the whole day in scratching for, seeking, and collecting provision.

The finest and almost imperceptible seed cannot escape the piercing eye of the hen. The quickest winged fly cannot escape the promptitude with which she darts out her bill. The worm which comes to respire at the surface of the ground, has no time to wind back into his hiding place, but is immediately seized by the head, and disinterred.

Unluckily, when the hen has found a prey of this last kind, her discretion is by no means equal to her adroitness. She immediately announces it by her cries. Her companions rush towards her. They find her with the worm hanging to her bill, and trying to find out some private place in which to devour it; all of them immediately dart upon this prey. The worm passes from bill to bill, until it is carried to a considerable distance from the crowd by the last hen that has obtained it, that she may have the liberty of devouring it at her ease.

Hens thus feeding on grains, worms, insects, and all that they can find by the most pertinacious search in dunghills, yards, barns, coach-houses, stables, &c., have no need in spring and winter of any supply of food, except twice a day, which they should always receive in the morning at the rising of the sun, and in the evening before he sets. The nature of such food is too well known to render it necessary for us to insist upon it here.

The decided taste which hens show for worms has suggested a curious mode of multiplying these last for their use. A sort of paste is made of yeast of barley, bran, and horse-

dung. It is put into a proper vessel. At the end of three days, if the weather be warm, it will be filled with a multitude of worms, which will serve as food for the hens.

This may be done upon a still larger scale. In a part of the poultry-yard, sufficiently elevated to permit the running down of waters, four walls are constructed, each two feet in length, and four in height, which form a square foss. In this foss are put, successively, rye straw, cut up, fresh horse-dung, light earth, moistened with the blood of oxen or other animals, a mixture of the squeezed substance of grapes, of oats, and bran. On this last bed are spread the intestines of animals, cut in pieces; then recommencing with the bed of rye-straw as at first, the same order is followed until the foss is filled. Then it is covered with thorny branches, kept down by large stones, to prevent the attacks of the fowl.

This mixture soon becomes, as it were, converted into a heap of worms, which are preserved for that season in which the earth, hardened by frost, produces no more, and they are distributed in small portions to the fowl every morning. This method is pursued in France.

Hens, though very easily frightened by the smallest strange animal that approaches them, soon become accustomed to all the people of the farm which they inhabit. They will come and eat with the other domestic animals in their racks and troughs; they would even place themselves at table with their masters, if permitted. They are constant to the house from which they derive their support, and very seldom, if ever, remove to any great distance from it; so that when a hen is seen by a traveller who is looking for a habitation, he may rest assured that there is one at no great distance.

With respect to the management of hens in their habitations, food, incubation, diseases, &c., we shall enter into no details, as this constitutes a branch of rural economy, rather than of natural history, and is, moreover, sufficiently known

to those whose interest it is to cultivate it, and has little of curiosity or interest attached to it for other persons.

The season of laying commences with the hens in the month of February, in cold countries. Having laid eighteen or twenty eggs in succession, they usually stop there, and show an inclination to sit; but by taking away their eggs according as they are laid, the hens will still continue laying. Their fecundity varies in degree; some only lay one egg in three days, others one in two days, and some, but this is very rare, lay two eggs in one day. In general the young hens lay more eggs than those of a middle age, but they are smaller, and the old ones cease to lay at the end of their fourth year. The laying of hens, with some occasional interruptions, continues until the end of summer, when it is stopped by the moulting.

In this last state they are particularly feeble, melancholy, and languishing. Their feathers bristle up, and they are constantly employed in plucking out those which have a tendency to fall. Sometimes the plumage is entirely changed, and they are seen to pass from white to black, or from black to white.

A method has been found of making hens lay during the winter, by selecting the most vigorous, and shutting them up in a warm and light chamber. A young and strong cock is put in along with them, they receive an abundant and stimulating nourishment, and are kept with the greatest possible attention to cleanliness. It has been remarked, however, that this unnatural and unseasonable sort of forcing is injurious to the constitution of the birds. The shell of the eggs has also been observed to be less heavy, and they have but one simple membrane, as is the case with eggs laid by hens which are too fat.

During the rigorous winter of 1788, some hens lost their

crests and feet by the frost; in spring they walked upon their knees, and laid eggs just as usual.

Eggs are produced by the hen without the intervention of the cock. They are then termed clear eggs, and are said, though without much apparent foundation, to be less wholesome than the others. They have, however, this great advantage, that they can be better preserved, and are fitter for exportation.

A hen has been confined in a cage or coop, and laid regularly every other day, from the month of March to that of October, without ever manifesting the least desire of sitting.

There is one remark worthy of being made here. In all this order of gallinæ the young birds can eat alone as soon as they leave the shell; consequently, the number of eggs is precisely that which each mother can conveniently cover, and keep warm with her body and wings. With most other birds the number of eggs does not often exceed four or five, not because the females of those birds could not cover a greater quantity, but because, being obliged to provide for the nourishment of the young for some time after their birth, they could not suffice for this purpose if the offspring was too numerous.

Formerly the pointed eggs were supposed to contain the male germ, and the round ones the female; but this, it is said, has been since ascertained by more unequivocal symptoms. If on examining an egg by candle-light a small vacancy is seen underneath the shell at one end, and if this vacancy is precisely at the end, it contains the germ of the male. If a little on one side, it is that of the female.

The love of liberty, the desire of withdrawing their eggs and young ones from the search of their enemies, and that instinct which brings back hens to their primitive state when they are disposed to fulfil those important functions which

nature has designed them for, often determine them to go and hatch somewhere in secret. After this, they return, as it were in triumph, to the poultry-yard, at the head of a troop of little chickens, which are in a much better condition than those which are hatched by a hen selected for the purpose, and receive all the attention which the most intelligent attendant can bestow.

Hens have been known to go and make their nests in a park, lay and hatch there, and establish themselves with their families and become wild. They are then covered with more abundant plumage, lay less frequently, their flesh is less tender, but higher flavoured. They remain faithful to their cocks until the latter die, and then mix with the pheasants, and produce mules.

Many authors have written on that curious subject, the development of the fœtus in the egg, among whom Haller has entered into many minute details upon its progress. The result of the observations of this great man we present to our readers in a condensed form.

At the end of twelve hours the commencement of organization is already perceptible in that little spot, which is named the *cicatricula*, and which is placed over the globe of the yolk, and always, by a peculiar mechanism, at its upper part, whatever may be the position of the egg in the centre of which this globe is suspended.

The parts of the fœtus which were invisible before incubation, in consequence of their exiguity, their fluidity, and transparence, gradually acquire the consistence which is requisite for them. Thus those which are destined to be solid, as the bones for example, become gelatinous, membranous, and cartilaginous, before they are ossified.

According to their development, some being quicker, and others slower, in proportion to their importance in the organization of the bird, they lose more or less promptly their

transparence, and assume the forms and situations which render them easy to be recognized. On this account they do not become obvious to detection but at different periods. On the first day, the head and dorsal spine may be distinguished; on the second, the vertebræ and the heart; on the third, the neck and breast; on the fourth, the eyes and liver; on the fifth, the stomach and reins; on the sixth, the lungs and skin; on the seventh, the intestines and bill; on the eighth, the gall-bladder and ventricles of the heart; on the ninth, the wings and thighs; and on the tenth, all the parts which should constitute the chicken are in their places, and have already assumed the form which characterizes them. On the subsequent days they are developed still more, acquire all the growth of which they are susceptible in this state, and the chicken becomes sufficiently strong to break the shell, which takes place on the twenty-first day of incubation.

The principle of life introduced by the act of the male into the egg already commenced in the female ovary, probably contributes to organize it for the end which nature has proposed. But as soon as this egg is laid, the principle of life slumbers in it, until awakened by the caloric communicated by the sitting hen; then, in concert with this last agent, it gives motion to the embryo which it is commissioned to animate. It communicates to it the faculty of increase, of employing in its organization and nutriment all the substances which are enclosed with it in this isolated matrix, which, however, fulfils all the same functions as those of the mammalia.

The yolk of the egg then augments in quantity at the expense of the albumen, the fluid part of which it absorbs. It becomes a nutritious milk, which is carried into the liver, elaborated there, and finally passes into the circulation.

The yolk, to the nineteenth day of the incubation, forms in the egg a distinct body from the bird, shut up in a separate

capsule. They have no communication together but by vessels, which hold the place of the umbilical cord; but on the nineteenth day it is introduced altogether into the abdomen, and by its presence so increases the volume of the chicken, that there is no longer sufficient room for it in the lymphatic bag where it was. This bursts, and the pulmonary organs come in contact with the air, which has penetrated into the egg, to fill the void occasioned there by evaporation.

The chicken respires, whines, its vital force acquires more energy, it moves, its limbs are developed, its bill is brought into action, its shell is broken, and it issues forth.

It is with reason that the tenderness and solicitude of the hen for her chickens, have been so greatly celebrated. The change which maternal love produces on her character and habits, is truly worthy of admiration. Before, she was voracious, insatiable, restless, timid, and pusillanimous; once become a mother, she is generous, frugal, temperate, reserved, courageous, and intrepid. She assumes all the qualities that distinguish the cock, and carries them even to a greater pitch of perfection. When she advances into the poultry-yard, surrounded by her young, which she leads there for the first time, it would seem as if, proud of her new dignity, she took pleasure in coming to fulfil its functions in the presence of the male. Her walk is as grave and stately as that of the cock himself in the midst of his hens. Her imitation of him is complete; but she is also prepared to equal him in courage, and to surpass him in vigilance and attachment to her flock.

Her eye are lively, animated, and wonderfully mobile; her looks are so prompt and rapid, that she seems to embrace all objects with a single glance, to discover at one and the same time the little seed which she points out to her young

upon the ground, and the bird of prey in the cloud, whose approach she dreads, not for herself, but for them, and announces by a plaintive cry, which warns them to take refuge under her wings.

Continually occupied with their welfare, she excites them to follow her and to eat. She comminutes their food; she scrapes the earth in search of worms, which she abandons to them; she stops from time to time, crouches down, and, forming a cradle with her wings, invites her tender nurselings to assemble underneath them for shelter and for warmth.

She continues to lavish these cares upon them until they are no longer needed, which happens when the chickens are covered with all their plumes, and have attained about one half of their specific size.

Man, who is perpetually interfering with and perverting nature, either for the gratification of his appetites, the furtherance of his interest, or through mere caprice, has bethought himself of mutilating this fine bird, the cock, and producing what are called capons. These preserve their flesh as white, delicate, and tender as it was in their early age; and, no longer excited by the stimuli of desire or of resentment, they acquire in a state of absolute indifference a perfect degree of obesity.

This practice of making capons is very ancient. It was prevalent in old times in Judea and at Rome. It is singular enough that it should be utterly discountenanced in Egypt, as well as a similar mutilation of any other animal. This perhaps is a remnant of the ancient superstition of the country. It would be well if the modern Egyptians were equally scrupulous respecting the integrity of their own species.

Columella says, that capons can be made by cutting off the

spurs of the young cock to the quick, and searing the wound with a red-hot iron. This appears to be much more than doubtful.

Capons are not subject to the moulting. Their voice loses its strength and clearness; they seldom attempt to make it heard, and are sad and melancholy in their disposition. The cocks treat them with great severity, and the hens hold them in detestation. They would soon fall a sacrifice to the persecution of their companions, if man, who has degraded them for his own purposes, did not withdraw them to fulfil the object of their destiny. This object is simply to eat, drink, and sleep, that they may get fat as soon as possible. How many men, without being in the same situation, have no other object or business in existence?

A singular, experiment has been tried with capons, in France, according to M. Parmentier, to make them perform the office of hens, in conducting chickens, and even in hatching eggs. For this purpose a stout and vigorous capon is chosen, his belly is deplumed, he is rubbed with nettles, and made drunk with toast and wine. This treatment is repeated for two or three days, during which they keep him shut up in some narrow and confined place; then he is put into a cage with two or three chickens, which eat with him, glide under his belly, and, by their down, calm the smarts which the plucking of his feathers and the nettles have occasioned. He soon grows attached to them, and calls them back when they quit him. Their number is augmented daily, until he has as many as the volume of his body and the amplitude of his wings will cover. When the intended number is completed, he must be left with them two days longer in a large cage, and then permitted to proceed forth conducting his flock. He will prove as careful and attentive to them as the most assiduous female.

It was, doubtless, a very good idea thus to make the capon

a substitute for the hen, as the latter might by this means be continuously engaged in the business of reproduction. But it must be owned that the means adopted for this purpose are not of the most merciful description. Reaumur was of this opinion: and not thinking it necessary to make the capon drunk, to teach him the trade of a conductor, and still less to pluck out his feathers, which would contribute to keep the chickens warm, he deemed it sufficient to put him at first alone into a bucket, not very wide, but rather deep, leave him but little light, take him out two or three times a day, and put him under a cage, where he might find some grain; then two or three chickens were put into him, the number gradually augmented as at first, and the success was exactly the same.

When the capon, thus become a conductor of chickens, reappears in the poultry-yard, his demeanour is widely different from what it originally had been. Instead of being melancholy, abashed, and humiliated, he assumes a bold, lofty, and triumphant air; and such is the influence of audacity over all animals, that this borrowed carriage completely imposes on the cocks and hens, and prevents them from disturbing him in the fulfilment of his charge. At first he is a little awkward in the exercise of his office. His ambition of imitating in his gait the majesty and dignity of the cock, makes him carry his head too stiff, and prevents him from seeing the chickens, which he sometimes inadvertently thus tramples under foot. But experience soon teaches him to avoid such mishaps, and accidents of the same kind do not occur again.

As the voice of the capon is not so expressive as that of the hen, to engage the chickens to follow and assemble near him, this deficiency has been supplied by attaching a little bell to his neck. When he is once instructed to conduct chickens in this way, he always remains capable of doing it; or, at all

events, it is very easy to bring him back to the habit of it, when necessary.

The capon has, also, as we have observed, been taught to cover eggs. The preliminaries are similar to those we have already described as preparatory to his conducting chickens. There is considerable advantage in this, as he can cover twenty-five eggs, at least; and after the incubation, he will lead the young ones without any trouble. He may be made to recommence this operation two or three times successively, and especially if care be taken to nourish him well. Were a practice of this kind generally adopted, hens would continue to lay without intermission, up to the season of moulting.

Hens are sometimes caponed as well as cocks, and thereby the flavour of their flesh is very much improved.

The epicurism of man has suggested various modes of fattening fowls excessively, all of which are unnatural, and more or less cruel. Their result, in fact, is always to produce disease, and more particularly of the liver. We must be excused from entering into any details respecting them. They only show how far a perverted taste will degrade civilized man, when he makes his intellectual faculties wholly subservient to the uncontrolled requisitions of his animal nature.

A brief notice of the modes of hatching chickens artificially, will, however, not be without interest for our readers.

When men had tamed those fowls which people our poultry-yards, and succeeded in making hens lay eggs nearly all the year round, they were enabled to appreciate the immense resources thus opened to them, and became naturally desirous of extending them. This doubtless gave rise to the idea of artificial incubation. It had been observed, that eggs, deposited and left in a place where a temperature predominated equally elevated and invariable as that which the

hen could communicate to them, became hatched of themselves. The natural conclusion from this was, that the only office of the hen in incubation was that of an agent to transmit the quantity of caloric necessary for the development of the embryo, and that any other heat, providing that it was absolutely similar in energy and duration, would produce the same effect.

It was only necessary then to imitate the process which chance had pointed out, and to choose a situation where the eggs would be subjected to the same temperature as under the female which had laid them. Nothing seemed more easy of discovery than this; all nations were interested in finding it out, and yet it was only in Egypt that modes sufficiently perfect for this purpose were invented, and from which any considerable advantages were derived.

The ovens, or hatching-places, invented by the priests of that country, furnished, in ancient times, one hundred millions of chickens in the year; and at present, when the population of that country is less, and the ovens are managed by simple peasants, who inherit the secret of those ancient priests, they still produce thirty millions in the same space of time. In the records of other nations, from the highest antiquity to our own days, we find no accounts of eggs artificially hatched, a few excepted, which were brought to perfection by methods very different from those of the Egyptians.

It is not, however, to be doubted, but that the success obtained by the Egyptian mode, must have excited the emulation of the Greeks and Romans. But as they could not prevail on the Egyptian priests to reveal their secret, and as they were misled by the opinion of Aristotle that those priests employed the heat of dung for this purpose, their attempts in this way were too unproductive to induce them to form establishments worthy of the notice of history. They

have left us nothing but a few receipts on this subject, so inefficient as not to merit transcription.

Under the reign of Augustus, Livia, the wife of that emperor, having heard that a man had succeeded in hatching chickens, by the mere heat of his body, remaining in bed on the eggs, for the same length of time as hens employ in incubation, bethought herself of hatching an egg by keeping it in her bosom. It produced a little cock, with a handsome crest.

This circumstance excited great curiosity and interest. Attempts were renewed to find out the means of supplying the place of hens, and of performing this operation on a grand scale, and without employing the heat of dung. It would appear that the efforts made at this time of which we speak were more successful. The mode adopted seems indeed to have been better. According to Pliny, eggs were deposited on straw, in a place heated by a gentle fire, and turned regularly by a man appointed for the purpose. From these the chickens issued, precisely on the same day as they do from under the hens.

We are ignorant if the Romans availed themselves of this discovery for any length of time, or turned it to any great advantage. The probability is that they did not; for, from the time of Pliny to that of the crusaders, and beyond it, we find no mention of artificial incubation in the history of any people, except the Egyptians. But on the revival of the arts and sciences in Europe, we find the Egyptian method itself transmitted, in succession, into Malta, Sicily, Italy, and France. We find a grand Duke of Florence causing to be brought from the town of Berme, in Egypt, one of those inheritors of the secret of the priests, to direct an oven for the hatching of eggs. Then we read of a king of Naples, Alphonso the Second, establishing one at Pongeal, his country-house; and finally, Charles the Eighth of France had one

constructed at Amboise, and Francis the First followed his example at Montrichard.

These multiplied trials of the Egyptian method should have contributed to make it generally adopted in Europe. Probably they were not always sufficiently successful to excite the cupidity of private persons. They were considered rather as a new mode of amusement for crowned heads, than an object of advantageous speculation for subjects. However, as the little are always fond of aping the great, the people became desirous of the amusement of hatching eggs, as well as kings. Inquiries were set on foot as to the possibility of doing the thing on a small scale, and at a small expense. Philosophers then produced the old receipts of the Greeks, and nearly at the same time the Portuguese travellers communicated the system employed in China. This consists in putting into a vase, eggs, which are sunk in fine sand at the thick end, covering them with a mat, and placing the vase on a stove, which is fed with live coal.

The industry and ingenuity of our Gallic neighbours soon modified these operations. Olivier de Serres tells us of a small portable oven, made of iron or copper, in which eggs were arranged, mixed with feathers, and which was covered with a very soft cushion. A continued and equal heat was given to the entire stove, by means of four lamps, always kept lighted. But this celebrated agriculturist remarks, that this affair was more curious than useful, and that the chickens which it supplied required more attention than others, that they were more weak, and more subject to defluxions and to colds.

In pursuing this investigation, we come to that remarkable era when philosophical travellers, on their return from Egypt, brought back faithful drawings of the hatching-ovens there, and descriptions of the operations which they had seen employed in that country. We also come to the time when

a celebrated natural philosopher invented the thermometer, the most proper instrument for regulating the temperature necessary for artificial incubation. Reaumur employed himself in collecting all the testimonies of travellers, comparing them together, endeavouring to reconcile them, and repeating all the processes of this art, so as to establish it finally in France. Unfortunately, certain errors had crept into all the descriptions of travellers, which Reaumur, and other philosophers after him, conceived to be defects in the art itself. He could not possibly doubt the success with which the experiment had been attended in Egypt; but he persuaded himself that it was owing to the temperature of that country. He judged that it would be impossible to obtain similar results in France, where the climate could not correct the faults in the *modus operandi*. Instead, therefore, of following his original design of bringing to perfection the Egyptian plan, he endeavoured to find out another. He devised two methods, which he presented to the public, as more convenient, less expensive, and more certain than the Egyptian system.

The first consisted in placing in a mass of dung in fomentation, some casks, upright, and plastered internally, in which he put the eggs, ranged in suspended baskets; or in covering, and enveloping with dung, large and long chests, fixed horizontally, painted, or pitched outside, furnished with lead internally, having one of their extremities fastened into a wall, and opening into a room which this wall separated from the dunghill. Little chariots, on casters, were passed through this aperture, containing the eggs.

In these horizontal boxes, and also in the vertically placed casks, he held thermometers, to judge of the temperature which reigned there, and to ascertain if it was necessary to raise or lower it.

The second method converted either into a sort of hothouse the place above those ovens that are continually em-

ployed, such as those of bakers, confectioners, &c., or preparing chambers, which he heated by a stove, observing in the first case to modify the heat, and in the second to regulate the fire, by the assistance of his thermometers, so that during the twenty-one days necessary for the incubation of the eggs, the temperature should not be below twenty-eight degrees, or above thirty-four.

By dint of perseverance, address, and care, Reaumur succeeded in managing these operations very well. But they involve so much trouble and difficulty to the persons to whom their execution must of necessity be confided, that, since his death, nobody has thought proper to adopt them. They produced the effect, however, of inducing other natural philosophers to search for methods less defective, and more cleanly, with a view to an establishment of this kind on an extensive scale. M. Chapineau, author of a book called "*Homme rival de la Nature*," has in particular shewn a vast deal of intelligence and ingenuity in his attempts in this way.

His hatching-room or house, is a round building, the top of which is a vault, with four triangular windows, each opening at pleasure by means of a cord passed into a pulley. The entrance of this room is by two glass doors, one internal, the other external. Both these, as well as the windows, are provided with bands of lambskin, and to the last door is a curtain of thick woollen stuff. The exterior of this little building, to three-fourths of its height, is also covered with pieces of cloth. In the interior, circular tablets are arranged, on which the eggs are disposed, and which may contain about eight thousand. Between each tablet are four pipes, opposite to each other, for the purpose of distributing air; and which open and shut externally. In a chamber below this hatching-room, a stove or furnace is constructed, into which is dipped, about two feet deep, the base of a copper column, filled with water, heated to a suitable degree by the fire of

the furnace. This column pierces the floor of the hatching-room, rises into the interior, the centre of which it occupies, and issues out by the top.

The heat afforded by this central column filled with water, is more constant and regular than any which had been obtained before. It is regulated by thermometers, and moderated in the upper part of the hatching-room by introducing the external air, through the windows, and by means of the pipes which stand between the tables. This heat, in the lower part, when it has a tendency to diminish, is preserved by the thickness of the wall, and by the woollen stuff with which it is covered. Finally, to render this heat less drying, water is placed in the hatching-room, the vapour of which is measured by an excellent hygrometer, of M. Chapineau's invention, and which thus renders the heat as humid as that which exhales from a sitting hen.

Besides those methods which we have now described, many others have been imagined in France, where strenuous efforts have been made to rival the art of the Egyptians. It would be equally superfluous and tedious to enter into any details concerning them. They have been all more or less successful; and chickens have been produced in the various establishments founded on these plans. But, after all, the number little exceeded that which was obtained by the efforts of the Greeks and Romans. It bore no sort of comparison to the quantity produced annually in Egypt. Instead, therefore, of dwelling any longer on the French systems, it will be more interesting to our readers to give a short account of the Egyptian plan, with which we shall conclude this part of our subject.

The Egyptian buildings for hatching chickens in, are made of brick, not burnt, but dried in the sun. The interior is bisected longitudinally by a gallery or corridor, which separates two parallel ranges of ovens, the number of which varies

from three to eight on each side. Each of these ovens has two stories. The upper compartment has a door opening on the corridor; a hole in its vaulted roof, which is closed or opened at pleasure; lateral windows, which are never shut, and which communicate with the upper compartments of the neighbouring ovens; a circular aperture in the centre of its floor, by which one may descend into the lower compartment, and around which is drawn a sort of trench destined to receive and contain live fuel, the heat of which gives out through the aperture just mentioned. The lower compartment, like the upper, has a door which opens on the gallery, and on the ground of this compartment the eggs are placed.

In front of the principal building are several apartments, one of which, smaller than the rest, serves as a furnace to convert the pieces of dung into a sort of charcoal, and thus prevent them from spreading a smoke when they are put into the hatching-ovens, which would be injurious to the eggs. Another apartment is destined to receive the chickens when they are disclosed. In a third, the eggs are deposited which are intended to be put in the ovens. In a fourth, the people lodge who are charged with the direction of all these operations.

All these buildings are invariably on a level with the ground, and no part of them below it. They are generally backed against those little hillocks, so frequent in Egypt, which are found near towns and villages, of earth, rubbish, &c., which the people are thus obliged to heap up; for if spread abroad, they would make the soil unequal, and render irrigation difficult, and in many cases impossible.

Towards the middle of January these ovens are visited and repaired; and as they are common, and each of them serves a department of fifteen or twenty villages, the inhabitants are then advertised that they may bring their eggs there.

As soon as a sufficient quantity is arrived, they are put into the chambers intended for the first incubation. It is to be observed, that for this purpose they never employ all the ovens, but only half of those which the building contains; and that if there are a dozen, for example, they are taken in the following order: the first, the third, the fifth, the seventh, the ninth, and the eleventh.

The eggs are ranged three deep, in the lower chambers of each oven, on a bed of cut straw and dust— a mixture which Aristotle in all probability took for dung. In the trenches of the upper apartments is then placed the live fuel, resulting from the combustion of the pieces of dung, and which is taken from the furnace allotted for its preparation. After a few moments, the doors of the two compartments are closed, and the apertures in the vaulted roofs of the upper compartments alone left open an instant.

When the fuel is consumed, it is renewed, two or three times a day, and as often by night, observing the precaution at the same time of unstopping, for an instant, the hole in the vault, either to receive the air, or to secure the eggs against the first impression of the heat.

The fire is thus continued for ten days. Long experience, practised tact, and the application of the eggs against the eyelids, are the only thermometers used in Egypt for the regulation and equalization of the temperature.

During this space of time, the eggs are frequently turned and examined, and those which are damaged, or unfecundated, are removed.

On the eleventh day the second hatching begins, that is, new eggs are placed in the lower lodges of the six ovens left empty at the time the first hatching began: and these are managed as we have already described; but as soon as the fire is kindled in these ovens, it is put out in the others, so that the eggs of the latter are warmed only by the fire newly

kindled in the former, and they receive the heat only by the lateral windows, which are in the upper chambers of the ovens, and always remain open.

The second hatching being thus arranged, one half of the eggs in the lower chambers of the first four ovens which have been employed, are removed, and extended on the floor of the upper chambers. This change is made because the eggs require so much more care as they approach the term in which the chickens should come forth. They may be visited, turned, &c. with more facility.

When the twentieth day of incubation has arrived, some chickens are already seen to break their shells; but the great majority are disclosed the following day, with or without assistance. A few, however, do not make their appearance until the twenty-second day.

The strongest chickens are then carried into the chamber destined to receive them, and are distributed to the persons who have furnished the eggs, and who receive two chickens for three eggs. The weakest are kept for some days longer in the corridor.

When this first hatching is finished, they proceed to a third, dealing with the second in the manner we have just described for the first; and they continue the same system with all the successive incubations which take place during the season.

In Egypt, it is not the Bermeans who regulate the ovens, that undertake the care of the chickens. Almost as soon as they have issued from their shells, they are delivered, in bands, of four or five hundred, to those who have furnished the eggs, and the women in each house charge themselves with the care of them. In this country, where it seldom or never rains, the houses, instead of slanting roofs, have flat terraces, bounded by little walls four or five feet high. It is in these enclosures, on the ground of which a bed of fine earth is

spread, that the chickens pass the day. They are watched there, to preserve them from kites, and are fed with pounded millet and rice.

On the approach of night, they are shut up in cages, made of branches of the palm-tree, and furnished internally with thick cloth, and they are taken into the apartments of the house. One month is sufficient to fit them to be united with the fowl in the poultry yards.

M. Parmentier is not at all inclined to allow any thing for the influence of the climate of Egypt in the success of these operations. But we really think that much more is attributable to it than he will admit. We will concede, if he pleases, that the business of artificial incubation may be carried on as well in Europe, and is totally uninfluenced by external temperature; a fact, however, which is very far from being demonstrated. However, we will concede it; but we may be permitted to ask, whether the agency of climate goes for nothing in the education of the young? That it does not, appears evident from his own details, respecting the extraordinary degree of care and attention obliged to be adopted in this particular in France, with the chickens which have been artificially hatched. To preserve them in existence, they must be kept in the most close and tender manner, and accustomed, by the most insensible degrees, to the impression of the external atmosphere. The air which they respire is factitious; the climate which they inhabit is the creation of man, and, like all the rest of his creations, very inadequate substitutes for the genial operations of nature. This tender mode of education must render the majority of these young birds feeble and unhealthy. One month, as we have seen, suffices, in Egypt, to qualify the artificially hatched chickens to mingle with the rest of the domestic poultry and provide for themselves. In France, more than three months must

elapse before any of them can do the same. This fact appears to us almost decisive of the question.

It must be allowed, however, that if the artificial mode could be brought to succeed in Europe, it would be very desirable. It is far more productive in Egypt than the natural incubation elsewhere. If it succeeded, there would be no interruption to the laying of hens for the whole season. From various accidents, it happens that more than half the eggs, which are incubated by hens, prove unproductive. Now, in Egypt more than two thirds of the eggs produce chickens. The conductor of one of these hatching establishments constantly returns two thousand chickens for three thousand eggs, and contents himself, as a recompense for his cares, with the birds which are disclosed from the remaining thousand.

We shall now notice a few of the varieties, or sub-races, of the domestic cock, and then proceed to a consideration of such species as have been considered distinct in the genus. The characters which mark the varieties, or sub-races, are, of course, specifically unimportant. They consist, chiefly, in differences of size; greater or less extent of comb: in this last being double, or replaced by a plume of feathers; in the feet and toes being feathered, or smooth; and other discrepancies of the same nature.

The *Crested Cock (Gallus Cristatus)* differs from the domestic, by having an ample tuft of feathers, instead of a fleshy comb, upon the head; but it retains the wattles. Some, indeed, have these replaced by bunches of feathers; and in one —said to be of a cross-breed with the cocks of Hamburgh, or perhaps this race itself, for it does not differ from Cristatus except in having the eyes surrounded with a circle of feathers— similar plumes, falling back horizontally, cover the ears, the occiput, and sometimes the throat.

The race of crested cocks is particularly in estimation with the curious. It is cultivated with great care; and those who are desirous of propagating any singular varieties of it, isolate certain individuals, and do not suffer them to mingle with others, in which the colours are differently distributed. Such varieties are more esteemed in proportion as the colours are more rare, or as the tuft contrasts with the rest of the plumage. Though the differences of plumage are thus preserved pretty constant, it is certain that they owe their origin to the same race, and cannot be reproduced in all their purity without the surveillance of man.

Sonnini tells us that these cocks are much esteemed in Egypt, in consequence of the goodness of their flesh. In Upper Egypt they are so common that they are sold at the rate of two-pence or three-pence a-piece. They are equally abundant at the Cape of Good Hope.

The *Turkish* and *Bantam Cocks* are considered together by M. Temminck, as, in truth, there is a great analogy between them. They do not, in fact, differ very materially from our domestic race; and have also much analogy with the Javan species, bankiva. They resemble each other in size; their tail is not nearly so vertical as in our domestic breed, and they are smaller than our cock. They may be considered, perhaps, as the result of a breed, less crossed, more directly originating from bankiva.

The bantam cocks differ from the Turkish in the feathers, more or less long, with which the tarsus, and frequently even the toes, are covered. These feathers do not constitute any specific difference; they appear to be simply the effect of superabundant nourishment, with the inseparable consequence of domestication. The same effect, produced by the same causes, is found in many races of the domestic pigeon, which have also the tarsi and feet furnished with feathers, of greater or less length.

The races of the Turkish and Bantam cocks are distinguished by a very brilliant plumage, which in the cocks is most generally of a golden lustre.

The *Dwarf Cock*, though much inferior in size to the other race, is very similar to the common cocks and hens. The legs are in general very short; and the general size varies in different individuals; some are as large as the crow, others do not exceed the pigeon in bulk. The majority have the toes feathered; some sub-races have the comb double, others single; some carry the wings so low, that they trail along the ground. The colours of the plumage vary.

There is a multitude more of the races of our domestic cock, whose variations from that species, and from the varieties now described, do not appear of sufficient importance to demand a distinct enumeration. We pass on to the different species, or what are considered as such.

We begin with the *Jago Cock* (*Gallus Giganteus*). This bird lives in a wild state, in the forests of the southern part of the Island of Sumatra; it is also found in the western portions of the Island of Java. Dampier and Marsden have noticed it. The last, who speaks of it very succinctly, says, that he saw a cock of this species, which, standing on the floor of an apartment, reached easily to the dinner-table with his bill; when this bird was fatigued, he rested himself on the first articulation of the leg, and, even then, was taller than our domestic cock. A leg of this bird, in possession of M. Temminck, was of an enormous size, and had a spur two inches long.

The Paduan cocks, and the hens of Sansevarre, (*Gallus Patavinus*), seem to approach the nearest to this Jago species, and may be considered as varieties or descendants of it. This race is almost double the size of our domestic cocks and hens; their voice is strong and hoarse; and the weight is eight or ten pounds. To this race may also be referred the

C. Hamilton Smith Esq.del!
Mus. Paris.
THE JAVAN COCK.
GALLUS BANKIVA.

great cocks of Rhodes, of Persia, and of Pegu; and the large hens of Bahia, mentioned by Dampier.

In a natural order, the species *Bankiva* should occupy the second rank, as having concurred to the production of our domestic fowl and their numerous variations. In fact, on considering this bird, it will be found to exhibit many relations with our village cocks of the middle size; the form and colour are the same; the crest and wattles are like those of our cocks; and the hen so much resembles a common hen, that it is difficult to distinguish it, except by the less vertical slant of the tail. This character is much more apparent in the male; it may be observed, however, that in all the primitive species known, the tail has not so vertical a position, nor is it so abundantly provided with covering feathers, as in the domestic cocks. It would appear, that in the last, the superabundance of nourishment, and the assiduous care of man, have powerfully contributed to furnish them with juices, proper for the development of all their organs; this is amply proved by the different races of which we have already given a slight survey.

No primitive species yet known exhibit so much analogy with our domestic breeds as the Jago and Bankiva. The females, like our hens, have small crests, and the skin of the neck is denuded of feathers.

These birds were brought from Java by M. Leschenault. The inhabitants of the interior of that country call them *Ayam Bankiva;* they inhabit great forests, and are often found along the borders of woods; they are exceedingly wild. They very much resemble, as we have already mentioned, both in form and colours, the Turkish and Bantam breeds. The position of the tail, however, differs, being horizontal and vaulted in Bankiva, while in the last mentioned races, it is more raised, and forms two vertical planes. The feathers which fall from the neck over the top of the back are, as in

our cocks, long, and with divided barbs. The end of each feather widens a little, and is rounded. The colours of the plumage are exceedingly brilliant. The hen is smaller than the cock, and her tail is also a little horizontal and vaulted; she has a small crest, and the fleshy appendages or wattles, are very short; the space round the eyes is naked, as well as the throat; and on this last part are some small feathers, distant from each other, through which the red skin is perceptible.

The *Wild Cock of Sonnerat*, which this traveller discovered in the vast and solitary forests of India, is supposed by him to be the source of our domestic races. We have already seen the contempt with which this writer treats the opinions of others, concerning the existence of wild cocks in the Indian Archipelago, and in the new world. He appears to have particularly piqued himself on the discovery, as if he had found out the only source to which the common breed could possibly be referred; but this idea of his has been shewn to be totally destitute of foundation; for not only are the common races with great probability referred to the primitive species, which we have just described, but actually the cock of Sonnerat would appear to have little or no share in their origination.

The cock of Sonnerat, from the point of the bill to the extremity of its lowered and extended tail, is about two feet four inches in length; its bulk is one-third less than that of our village cock; from the level of the feet to the summit of the head, crest not included, are fourteen inches and a half; the crest is indented; and the wattles resemble those of our domestic cock; but the naked parts of the head and throat are more considerable.

The feathers of the head and neck grow longer as they approach the body, and their form and nature are different from those of the same parts in other cocks, whether wild or

domestic; the tube is gross, and considerably expanded; it forms a white stripe along the entire of the feather, as far as the extremity, where it dilates and gives rise to an extension of a cartilaginous nature, and rounded form; this lamina is whitish, thin, and very polished; this substance is found still more apparent upon the wings: the extremity, in fact, of all the alar feathers forms a broad, cartilaginous plate, whose substance is solid, and very thick to the touch, though as lustrous and polished as in the feathers of the neck. These laminæ are of a deep-red, and form by their reunion a plate of a red marron, which looks as if it were varnished.

The female is smaller than the male, and has neither crest nor wattles; the throat is covered with feathers—a marked distinction from our domestic hens. The circumference round the eye is naked and reddish.

This species inhabits India; it lives in the great forests, and continues to reproduce there in the wild state. It is clearly distinct from the domestic races educated by the Indians; these resemble, in all respects, the other domesticated races of the cock in every quarter of the globe.

The *Negro Cock*, which Latham marks as a variety, M. Temminck seems to consider as a distinct species; it is originally of India, and remarkable for the colour of the crest and wattles, which are of a blackish violet. The skin is totally black, and the periosteum is tinted with this colour. On this colour of the flesh and bones, however, writers are not agreed. Marsden and Freyer tell us, that the bones of these cocks are of a decided black; others tell us that even the flesh is black. M. Temminck's observations present a different result. According to him, the epidermis and periosteum alone are black. The bones are like those of all other races, and the flesh is white and well-tasted. Many travellers, who have seen these birds in several parts of India, where the inhabitants rear them, confirm this assertion.

These cocks have indented crests and wattles, like our own. The plumage is generally black, with bronzed reflexions; but in domestication, is found to assume various colours.

The domestic race of these cocks is not very abundant, nor is much cultivation bestowed upon it. The epidermis, as black as ink, presents a disgusting appearance, when the bird is served up at table. When the hens mix with other males, mongrels of various colours are produced; some of these have the epidermis and periosteum tinted with black, and others entirely resemble our common hens. The nature of these birds is very wild, and the hens are not fruitful.

We are inclined to agree with M. Temminck, as to the distinction of this species, which is strongly confirmed by the examination of its internal parts.

M. d'Azara, in his essays on the natural history of the quadrupeds of Paraguay, says, that in that country, at Buenos Ayres, and in the range of the Andes, there are also hens, whose feathers, feet, crest, barbs, and skin, are black; the flesh is of a deeper colour than that of common hens, and the bones more opake. It is singular that no mention is made of these birds in M. d'Azara's book on the ornithology of those countries.

The *Silk Cock*, also a variety of the common, in Latham, M. Temminck considers specifically distinct. Like the negro cock, the epidermis and periosteum are black; but the flesh is white, and of an exquisite flavour. These birds would be esteemed equal to the pintado as a delicacy, but for the repugnant aspect of their skin.

The livery of this bird is of a pure white; the crest and wattles are of the colour of lake. All the barbs of the feathers are divided and extremely silky; even the down at the origin of the feathers is less close, and of a finer tissue, than in the races of common cocks.

The females are bad sitters, and much care is necessary to

make them lay. The species is very wild, and the cocks are not so courageous as ours. They are not easily brought to ally with common hens, but the production is fruitful.

This species inhabits different parts of Asia; it is found in Japan and China, where the inhabitants keep them in cages to sell them to the Europeans. It seems improbable that they will ever become very useful in a domesticated state.

The *Crisped or Friesland Cock* (Var. C. Latham) has all the feathers turned and frizzled; it is smaller than our common species, more wild, and less suitable for domestic purposes. The chickens of this species are very sensible to cold, and especially to wet; these birds are seldom reared, but for curiosity. Those which partake most of the primitive type have white plumage and smooth feet. They are natives of Asia, and are found in a domestic state in Java, Sumatra, and all the Indian Archipelago.

There is a species, called by the Malays, in Java, *Ayam-alas* (*Gallus Furcatus*, Temm.); this name signifies wild-cock, or cock of the woods. They distinguish it from their ayam-bankiva, and also from Ayam, which is the denomination of the domestic cock.

The Ayam-alas is remarkable for its horizontal and forked tail, for its smooth crest, and for having but a single wattle, or membranous appendage, which, beginning at the lower mandible of the bill, descends along the naked part of the throat, where it forms several folds. It is also distinguished by the rounded forms of the feathers of the neck, and upper part of the back, the barbs of which are very close, velvety, and scale-like. The male is about two feet long. The hen of the ayam-alas, differs likewise from the common hen, in the tail, form of the neck-feathers, and total want of crest and wattles; she measures fourteen inches.

This fine species is very abundant in the great forests of the interior of Java. The birds usually remain during the

day on the borders of woods. Their nature is wild; they are attentive to conceal themselves on the least indication of danger, and it is very difficult to approach for the purpose of killing them. They are not easily tamed, and are not kept in general in a domesticated state. The male, however, is said to produce with the domestic hen.

The *Rumpless or Persian Cock*, (*G. Ecaudatus*,) a variety by Latham, is a species with Temminck. It has given rise to many exaggerated stories.

In the Philosophical Transactions for 1693 we read, that the cocks of Virginia are rumpless; it was affirmed that these, transported from England to Virginia, lost their tails—an assertion which appears to be totally destitute of truth. Buffon, however, took up the story, and concluded that this species was native to Virginia.

This opinion is now positively known to be utterly erroneous; the rumpless cock is not a native of the new world, for this primitive species, as it undoubtedly is, inhabits the immense forests of the island of Ceylon. The hen constructs her nest upon the ground; it is rudely interlaced with fine plants, and resembles the nests of partridges. The natural disposition of this bird is wild, and the cock frequently crows, but less sonorously than ours, though the cadence is similar. The Cingalese call this species *Wallikikili*, (cock of the woods).

The distinctive character of this species consists in the absence of the last dorsal vertebra, which supports that carnosity named rump; the want of this vertebra is the natural cause that the cocks and hens of this species have no caudal quills or coverts, which in other birds are implanted in this part; it is also distinguished by a rounded crest, without emarginations. There are wattles, like as in our cock, from the base of the lower mandible. The feathers of the neck are long and slender, with disunited and silky barbs.

We come now to the PHEASANTS, *properly so called.* Their generic characters are, a moderate bill, with the base naked; upper mandible, vaulted, convex, and depressed towards the end; nostrils, basal and lateral, and half-closed by a vaulted membrane; cheeks covered with small verrucose barbles; head and throat covered with feathers; feet with three toes before and one behind; three anterior toes, united by a short membrane; a conical spur on the tarsus; tail considerably graduated, conical, and composed of eighteen quills; wings, short; the three external remiges shorter than the fourth and fifth, which are the longest of all.

Montbeillard, the coadjutor of Buffon, thus speaks of the native country of the *Common Pheasant,* (*Phasianus Colchicus*)—

"It is sufficient to name this bird to remind us of the place of its origin. The pheasant, that is, the bird of the Phasis, was, it is said, exclusively confined to Colchis, before the expedition of the Argonauts; those Greeks, ascending the Phasis, to arrive at Colchis, beheld these fine birds spread along the banks of the river, and by bringing them back to their own country, bestowed upon it a gift more precious than the golden fleece. At the present day, the pheasants of Colchis, or Mingrelia, and some other of the neighbouring countries, are the finest and largest in the known world."

From these countries they have been extended into almost all the regions of the known world. They are found in the major part of Europe; they are very abundant in Spain, in Italy, in some parts of Germany, (Bohemia in particular) and in the South of France. In the North, they are less common. The species, says M. Temminck, would soon be destroyed in Holland, if a certain number were not destined every year to repeople the woods and parks. To procure pheasants for this purpose, one or many small places are cleared in the middle of the wood, about three or four feet in

diameter; the pheasants are habituated to come there and take hempseed. About the month of September, nets are spread in these places; it is then easy to procure as many as will serve for the following year.

In England, pheasants are abundant enough in some parts, breeding in the woods, and affording fine sport to those who are fond of shooting. Like other game, they are preserved by laws, which, however decried by those whose business it is to pick holes in all existing institutions, are indispensably necessary, in this country, to prevent the total destruction of all species of this kind.

The common pheasant does not appear to inhabit Africa; it is not found at the Cape of Good Hope, though Buffon, on the authority of Kolben, assures us of the reverse. The inhabitants of that colony give the name to other birds *(fezant)*, among others, to a species of francolin. This is the bird to which Sparmann has also given the name of pheasant.

The common pheasant is greatly multiplied in China, where it lives in the woods, without mixing with the other species, which are also equally abundant in this mighty empire.

We find from the travels of Pallas that pheasants are found even in Siberia. They are very common among the Kirghis, who ornament their bonnets with the plumes of this bird.

It is easy to conclude from the shortness of the wings of the pheasant, and its consequent brief and heavy flight, that it could not of itself cross the seas which separate the old from the new continent; this conclusion is confirmed by the testimony of all travellers, who are agreed that no pheasants are to be found through the vast extent of America; for the hoccos, penelopes, and cocks, must be utterly excluded from

this genus, as likewise the argus, which has no relation whatever with it.

The common pheasant is too well known to need description. The hen is smaller, and has very little expression in her physiognomy: the young, previously to the first moulting, have a plumage uniformly grey; but after this they begin to assume the colours of the adult.

Although the nature of the pheasant is extremely wild, and he will fly from the least danger, nothing is more easy than to catch him in snares; he allows himself to be taken indiscriminately in all kinds of traps and nets. He runs with very great celerity, and seldom flies off, except when pursued or hunted. He frequently changes place when the grass or bushes are too moist; when he takes to flight, his wings make a considerable noise, and the male, at such times, sends forth sonorous cries. The life of the pheasant is calculated at from six to ten years; he rarely lives longer.

The pheasants delight most in wooded plains; they frequent humid places, where they find abundance of snails, of which they are very fond; the fruit of the wild mulberry is also a favourite food with them, and they eat it in great abundance. Their aliment consists besides, in all kinds of grain, small peas, lentils, juniper berries, elder berries, gooseberries, the seed of genista, medlars, beech-mast, pimpernel, worms, ants, and other insects.

Pheasants usually perch for the purpose of passing the night, and when the young of the first year are pursued, they often place themselves on the branches, even in view of the dog that sets them, which gives an opportunity to the fowler of killing them at his ease.

The disposition of the pheasant is by no means sociable; he avoids not only man, but his own fellows; it is only in the season of reproduction that the male seeks his companion, and this usually takes place towards the month of March or

April. One male is sufficient for many females in the wild state; in captivity, he receives but three; a greater number would not produce the same advantages as the common hens, as the pheasant is less vigorous than the cock. For breeding with proper effect, the male should be of the preceding year, and the females should be but three years old. Many amateurs cause the eggs of the pheasant to be hatched by hens.

In a state of captivity, the young pheasants require much care; the most critical period for these birds is when the tail begins to shoot. They may at first be fed with a mixture, composed of hard eggs, crumb of bread, minced lettuce, and ant-eggs. The larvæ of the blue-fly, which deposits its eggs in meat, are also recommended for them by some writers.

The domestic education of game is the best method of repeopling an estate with them, and repairing the destruction occasioned by the chase. M. Temminck recommends the following methods:

A place should be selected to contain the pheasants, surrounded with walls of sufficient height to prevent the incursions of foxes, &c., and of an extent proportioned to the quantity of game to be brought up; ten acres will be enough for one person to superintend; but the more extensive the space is the better. It is necessary that the troops of young game should be sufficiently removed from each other, to prevent their ages from being confounded. The neighbourhood of those which are strong is dangerous for the feeble. In the greater part of this space there should be plenty of grass, and a sufficient number of small, thick tufted bushes, that each group of birds may have one within reach; this is a matter of indispensable necessity in warm weather.

To procure pheasant's eggs with greater facility, it is necessary to feed a certain number of hens all the year round.

seven of these are shut up with a cock, in separate enclosures, which are covered with a net. The separation between two of these enclosures should be sufficiently thick, to prevent the pheasants in one seeing those in another; if the cocks saw each other, a spirit of rivalry would take place, which would be injurious to propagation. The pheasants should receive nourishing and stimulating food, which hastens the period of reproduction, but they should not be fattened, as this is dangerous. The hens which are too fat do not lay so many eggs, and the shell of the latter is so soft that there is a risk of their being broken in incubation. The enclosures should have a southern aspect, and be defended on the northern side by a wood, or high wall.

Pheasants lay towards the end of April; it is then necessary to collect the eggs every evening, for otherwise they would be often broken or devoured by the hens themselves. About eighteen of them may be put under a common hen, of which a trial has been made the preceding year; the incubation should take place in a subterraneous chamber, so that the heat may be moderated, and the impression of thunder be less felt. The incubation of these eggs continues for twenty-four, and sometimes for twenty-five days, before the young pheasants are excluded.

When this takes place, they should be left for twenty-four hours under the hen, without receiving any thing to eat. A box about three feet long, and two and a half wide, is the only space which they should at first be allowed to traverse. The hen is to be with them, but kept in by a grating, which does not prevent communication with the young pheasants; the part of the box which the hen inhabits, is closed at top, but the rest is open. A roof, however, of light planks, to put on occasionally, is necessary, to protect the young birds either from rain or a too powerful sun. Their liberty is gradually enlarged, and after fifteen days they may be left entirely free;

but the hen, which always remains shut up, serves as a rallying point for the young pheasants, and by continually calling them back, prevents them from wandering.

Eggs of ants should, if possible, constitute their constant food for the first month; it is even dangerous to dispense with them altogether; but the difficulty of procuring them, in sufficient abundance, renders it necessary to find out some substitute; hard eggs, mixed with crumb of bread, and a little lettuce, will answer pretty well. Their repasts should not be too frequent, at this early epoch, and they should receive but little at a time; this is the only means of securing them from contagious and even incurable maladies. It is justified by experience, and accordant with nature. The hen pheasant in the woods leads her young about continually all day long, and this continual change of place gives them the opportunity of feeding without repletion. After a month the quality of their food may be changed a little, and the quantity augmented.

The young pheasants are subject to be attacked by a species of lice, which proves to them a dangerous and even a fatal malady, if not remedied in time; the only means of preventing it is by the most scrupulous cleanliness respecting them and their habitation. With the young pheasants dangers diminish as they advance in age, but they have still a critical period to undergo. When they are a little more than two months old, the feathers of their tail begin to fall, and new ones to shoot out. This period may be accelerated, and rendered less dangerous, by feeding them on the eggs of ants. These, however, should not be given too abundantly, for a superabundance of this kind of food is as pernicious as its use is necessary.

It is of great importance to be very particular about the water which is given to the young pheasants. It should be of the best quality, and continually renewed. Inattention in

this respect exposes the young pheasants to a malady very common with chickens, called the pip.

As the object of this domestic education of game is to repeople the woods, as soon as it is finished the young birds should be dismissed from their enclosures, and set free on the estate at large. This may be done when they are about two months and a half old; but their nurse should be allowed to go with them, to teach them the means of procuring their own subsistence.

The *Variegated Pheasant* is but an accidental variety, which differs in plumage from the common sort. This may be owing to some alteration in the juices which minister to the development of the feathers. White is the predominant colour, marked in various parts with the other hues of the plumage of the common pheasant.

It generally happens that all the birds with this whitish, or entirely white, livery are diseased individuals. Frisch has observed that the variegated pheasant is not so well adapted for propagation.

These singular variations, or degradations, in the plumage of the pheasant, may also be attributed to domestication. Examples of this kind are rare among the wild pheasants, nor are they ever very much multiplied among the domesticated.

It is said by gamekeepers, that individuals with this white livery preserve it only for a few years, and then resume the brilliant colours peculiar to the species. If this be true, it proves that the variation in question is owing to some vice in the constitution. It is very certain that similar changes take place in many species of birds. Instances have been known of sparrows, of finches, of larks, and even of goelands, which were white, or whitish, at first, and after a few moultings recovered their natural plumage.

It is possible that extreme age may cause this degrada-

tion; but even then, its proximate cause appears to be some irregularity in the moulting. In all other cases it appears to be the result of accident, always excepting those northern birds that turn white in winter.

The *White Pheasant* is a variety, in which this colour is wholly prevalent, but by no means pure. Like that of the white peacock, the plumage bears the impressions of the colours proper to the species, but very slightly sketched. Moreover, few individuals are found to have the entire body covered with white feathers. Some plumes, richly decorated, are to be found here and there. Dr. Latham says that there are a few minute black spots about the neck, and some rufous ones on the scapulars.

The *Hybridal Pheasant* is a breed resulting from the mixture of the common cock-pheasant and our domestic hen. The offspring of this forced alliance, which very seldom succeeds, is incapable of reproduction; neither are such individuals numerous, for out of a hundred eggs it is rare to find more than two or three young ones excluded.

Frisch, however, tells us that such hybrids are common in Germany, where they are esteemed excellent eating.

Another hybrid, still more difficult to obtain, is the produce of the *Painted Pheasant* of China, and the common species. The plumage is magnificently decorated with the most brilliant colours. M. Temminck had one of these birds in his possession, and made many trials to see whether it would breed with the common hen-pheasant, with the painted pheasant, and with the ring-pheasant, all to no purpose.

M. Temminck considers the *Ring Pheasant* of China not as a variety of the common pheasant, but as a distinct species. According to him, the intercourse between these two birds, and consequent production of fruitful mongrels, is no proof of identity of species. This often takes place with the offspring of species nearly allied; and when the reverse is

RING PHEASANT OF CHINA.

a fact, as in the case of the mules which we have just noticed, it only proves, says this naturalist, the very great disparity which exists between the two species employed in such production.

Besides, it is only in a state of domestication that these hybrid breeds are produced. The ring-pheasant, wild in its native country, never unites with the common pheasant. This, we must allow, is a strong proof of distinction of species.

Moreover, there is a constant and marked difference between the plumage of these two birds. Their manners are dissimilar, and their eggs are different in colour.

The ring-pheasants are common in the woods of many parts of China. They are also frequent in India, where they are smaller than the common pheasant. They are also found about the Caspian Sea, in the southern part of the Desert, between the Don and the Volga, in Great Tartary, and the south of the Mongolian Desert. They are likewise pretty numerous in St. Helena.

The *Silver Pheasant* (*Ph. Nycthemerus*,) both in natural disposition and external forms exhibits much analogy with the birds of the genus gallus. It is easily tamed, and might be entirely domesticated. Its robust constitution approximates it more to the cock than the other pheasants. Its education requires only very moderate attention. The form of its caudal plumes, and the mode of their insertion, also present great analogies with the domestic cock.

The trachea of this pheasant is straight through its entire length, and grows narrow only towards the lower larynx, as in the cocks. The three demi-rings of the upper part of each bronchia are separated by two wide membranous intervals. The upper larynx and hyoid cartilages are also similar to the same parts in the cocks.

The male silver pheasant is of an amorous constitution.

These birds pair about the end of April. When the female has sufficient liberty, she attends with great assiduity to her young brood. The incubation lasts twenty-six days. The number of the eggs varies from eight to fourteen; they very seldom amount to eighteen. Their colour is yellowish-red, often bordering on black, and they have small brown points.

This pheasant inhabits the northern regions of the vast empire of China. It has been transported into almost all the countries of Europe, where, with a little care, it thrives perfectly well. It is more easily tamed than the common pheasant, and its young ones are reared with less difficulty.

Buffon imagined that the *Painted Pheasant* was but a variety of the common, and owed its splendid plumage to the influence of a more genial climate. This opinion, which has been adopted by no succeeding naturalist, is totally erroneous. The painted pheasant inhabits and multiplies in the same country with the common pheasant. The last is abundant in the northern part of China, and preserves there the same forms and colours as in Europe. In the wild state it never mingles with the common pheasant.

The painted pheasant is common enough in European menageries, but not so much so as nycthemerus and torquatus. It is a more delicate bird than these, and more difficult to rear, though the means pursued for this purpose are the same in all. In a state of domestication, more males are generally produced than females.

The total length of the male is two feet ten inches, or three feet, the tail alone being three or four and twenty inches long. The colours are sufficiently described in the text. The female is rather smaller than the male.

The food given to these pheasants generally consists of rice, flax-seed, wheat, or barley; they also eat red-cabbage, grass, leaves, and fruits, especially prunes and pears. They

are very fond of insects, and this kind of food is so necessary for them, that the want of it produces numerous maladies.

The flesh of these birds is flavoured like that of the common pheasant; it is yellowish, as are also the bones.

The hen begins to lay sooner in spring than the common pheasant, often as early as the month of March. The season of reproduction commences in February. When the painted pheasants are closely confined, they pay but little attention to their brood; but, at liberty, or in a vast enclosure, they display much solicitude for their young.

The young differ much from the old in the colours of the plumage. In the first year they are yellowish-grey, striped transversely with brown; in the second, the males may be distinguished from the females by their deeper hue. It is not until the third year that the male is clothed with his brilliant plumage. Like other pheasants, the old female sometimes assumes the livery of the male, but such changes are rare.

The eggs of the painted pheasant resemble those of the pintado. They are smaller in proportion than those of the common hen, and redder than those of our pheasants.

The painted pheasant is a native of China, where it bears the name of *Kinki*. This species would in all probability be more common in Europe were it brought up in a less confined state. After a certain time these birds should have sufficient liberty, and be exposed to the inclemency of the weather even in winter. They would thus become more hardy, and capable of enduring the cold of our climates. The trial has been made in Germany with great success. The opposite figure is of *Phasianus Diardi*, a full description of which is in the text. Of its habits nothing is known.

Of the *Argus Pheasant*, M. Temminck has made a distinct genus under the name of Argus. We shall lay his generic characters before the readers.

The bill is of the length of the head, compressed, and

straight, with a naked base. The upper mandible is vaulted, and curved towards its extremity. The nostrils are lateral, placed in the middle of the upper mandible, and half closed by a membrane. The head, cheeks, and neck are naked. The feet have three toes before, and one behind; the three anterior toes are united by a membrane. The tarsus is slender, and without a spur. The tail is raised, compressed in two planes, and composed of twelve rectrices, the two intermediate ones of which are very long; the secondary quills of the wings are longer than the remiges, and in the males double their length. The first remex is very short.

The descriptions by various authors of this fine and rare bird, have been very vague and imperfect. Montbeillard simply tells us of a pheasant in the north of China, remarkable for the eyes on its wings and tail, and the length of the two middle tail-feathers. He adds, that it is of the bulk of the turkey, and has a double tuft upon the head inclining backwards. The additions of Sonnini on this bird are not more satisfactory. Marsden calls it the famous pheasant of Sumatra, and places it, but wrongly, far above the peacock in point of beauty. He tells us that it has a decided antipathy for day-light, which can hardly be true except of captived individuals. There is a short but very exact description of it by the Baron de Wurmb, in the transactions of the Society of Batavia.

In all birds the greater or less rapidity of flight depends in a great measure on the length of the remiges. By the assistance of these quills, which are usually the strongest, the bird can moderate its flight, and has the power of turning more or less quickly. The secondary quills are also of great assistance; and the coverts, inclined graduatedly on these quills, contribute to strengthen them, and produce a greater force in the action of flight. It is by this mechanical arrangement that the wings can cut and strike the air, and serve as a continual point of support to the bird to enable it to rise at

pleasure, and assist its progressive motion. All birds of lofty flight, those who are obliged to turn with celerity, and all birds that make long voyages, and whose flight is continuous, are especially provided with long and powerful remiges.

The gallinæ, which are heavy birds, whose wings, ill-adapted for flight, neither permit them to set out quickly, nor to accelerate their course, nor to turn rapidly, nor to rise to an elevated distance in the air, have almost all the remiges shorter than the secondary quills. In the great majority of them, they pass very little beyond the rump. This character has acquired for the gallinæ, with some naturalists, the denomination of brachypterous, or short-winged birds.

But of all the gallinæ there are none whose wings are so little adapted for flight as those of the argus. The great quills, or remiges, are not only shorter than the secondary, but so disproportioned that one might almost be tempted to consider the conformation as an error of nature.

In fact, the secondary quills are three times longer than the primary. Their stems are extremely weak, and they have no coverts. If we add to this the weight of the bird, and its broad tail, in the centre of which are implanted two great and broad feathers, which exceed the others by many feet, we may easily conclude that the argus is not only a very unique bird, but also the only known bird in which so remarkable a disproportion takes place.

The argus runs more than it flies, and its legs being long, ren[illegible] it well adapted for this motion. It is also assisted therein by the use of its wings. It does, indeed, sometimes rise from the ground, but its flight is short and heavy.

This bird inhabits Sumatra, and is equally found in the south of India; and especially in the kingdoms of Pegu, Siam, and Cambodia. It is very abundant in the environs of Malacca. It is also said to be found in Chinese Tartary.

The argus was brought for the first time to Batavia from

Malacca in 1780, as a great curiosity. The adult bird is the shape of a turkey-hen; its entire length is about five feet three inches or more. The two intermediate plumes of the tail are three feet eight inches; the length of the secondaries of the wings is two feet ten, and that of the tarsus a little more than four inches. The throat, a part of the fore-neck, and the cheeks, are featherless. The skin which covers these parts, has a few scattered black hairs, and forms many irregular folds, without any rudiment of a membrane under the neck, nor any appendage of this nature to the cheeks. The colour of these parts is a fine crimson.

We shall not attempt to enlarge on the description of the argus, in the text. In fact, no language could represent the various tints, and demi-tints, and shades that prevail throughout its plumage. It would seem as if Nature, after having lavished, and, as it, were exhausted, all her brilliancy of colouring on so many birds, had taken a pleasure in assembling upon this every variety of her soberer hues; unsatisfied with having charmed our sight with the resplendency of purple, gold, and azure in the peacock, the bird of Paradise, and the humming-bird, she appears desirous of revealing to us all the resources of her art, by producing the most elegant and harmonious shades even from the refuse of her inimitable pallet.

When the argus pays his court to the female, he displays the fine feathers of his wings, and trails them along the ground. Then the varied mirrors with which they are adorned appear to the best advantage. He also elevates his tail, which appears like a broad fan. When this bird is undisturbed, or away from the female, he marches quietly along, and the mirrors of his wings are not visible. His tail forms two vertical planes, one over the other; the secondaries of the wings are inclined on the length of the tail, and very much exceed the lateral quills of the last.

The feet, which have no spurs, are red. The tarsus is long, and the interdigital membrane engages the toes as far as the first phalanx. The bill and claws are yellow, and the iris of the eye, a bright orange. We know nothing of the mode in which these birds build their nests, or concerning the brood.

The female of the argus has so little resemblance to the male, that an inexperienced observer might pronounce it a distinct species. The volume of the body is alike, but the great difference in the length of the tail and wings, and especially in the form of the last, makes the female appear much smaller than the male. There are, also, great differences in the distribution of the colours; and the eyes, which add so much elegance to the appearance of the male, are wanting, and also the two long feathers implanted in the centre of the tail.

The existence of the *Superb Pheasant* was considered, for a long time, and with great reason, to be doubtful. Sonnini gives a description of it, after the Chinese pictures, and concludes by remarking, that in all probability it existed only in the imagination of the Chinese painters.

It would appear, that it is of this bird, and not of the argus, that Marco-Polo has spoken in his travels. He says that the Chinese considered it as a very rare bird, and that the feathers were sold at a very high price. The length of the tail, he adds, was three feet.

No complete specimen of this bird exists in any collection in Europe, nor is one very likely to be obtained, in consequence of the strict prohibitory laws in China, against the exportation of any of the species. This difficulty is increased by the bird's being a native of the central and northern parts of that mighty empire. The father of M. Temminck, who was treasurer of the Dutch East India Company, did every thing in his power to procure a couple of these birds. He

never could, however, succeed in procuring a complete spoil. All that he could obtain, were two long feathers of the middle of the tail. These feathers, in possession of M. Temminck, serve to confirm the existence of the species, and also to indicate its extreme beauty.

The general colours of this bird have been described only after the Chinese figures, the inexactitude of which may be judged by their representing the two long feathers which we have mentioned, as tinted with blue and red, two colours not to be found in them.

M. Temminck conjectures that this pheasant has much analogy with *Phasianus Pictus*. He supposes its length to exceed six feet.

The *Fire-backed Pheasant (Phasianus Ignitus)*, of which our author makes his sub-genus HOUPPIFERES, is placed by M. Temminck at the end of the cocks. It must be confessed that it has many relations with them.

The first indication of this fine gallina is owing to Sir George Staunton, who described it after an individual which was offered to Lord Macartney, during his stay at Batavia. M. Temminck has called it, after the name of that illustrious nobleman, *Houppifère Macartney*. Its native country is the interior of Sumatra, on the borders of the deep forests of that island.

It is distinguished from the cocks by the tuft of slender feathers, forming the crest with which its head is adorned, by the naked portions of the cheeks, and the different forms of their carnosities; and by the length of the tarsus, which is more nervous and more robust than that of the cocks. The male is two feet long, or more. A thick, naked, and violet-coloured membrane, which seems to form a prolongation of the nostrils, is directed over the whole extent of the sides of the head, surrounds the eye, rises a few lines above the root of the bill and the cranium, and forms a sort of lax mem-

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CHANGEABLE PHEASANT

P. VERSICOLOR.

London. Published by Whittaker & Co. Ave Maria Lane. Oct.r 1829.

NEPAUL OR HORNED PHEASANT.

MELEAGRIS SATYRUS. Lath.

London Published by Whittaker & Co. Ave Maria Lane. Oct. 1st 1829.

brane, which is directed towards the occiput, while below each eye it forms a little wattle.

A variety has been remarked, which has all the plumage of a more violaceous tint; the feathers of the flanks are terminated with white, and the four middle tail-quills are of a pure white. There are some considerable differences in the colour of the young. Sumatra, as we have said, is the country of this bird; but it is also found on the Indian Continent. It is extremely wild; but, in all probability, like most others of its order, it might be reduced to a state of domestication by judicious care and attention. The opposite is a figure of *Phasianus Versicolor*, or *Ph. Diardi*, discovered by Messrs. Diard and Duvancel; a complete description of the bird will be found in its proper place in the text.

The *Nepaul*, or *Horned Pheasant*, has been formed by M. Cuvier into his sub-genus TRAGOPAN. Though removed under many points of view from the pheasants, it has, perhaps, more analogy with them than with any other genus. It has been classed with the turkey, but certain it is that it has no relation with it. The only character in which it agrees with that bird, is in having a loose membrane pendant to the throat and the upper part of the fore-neck. This membrane is of a fine blue, with orange-coloured spots. Behind the eyes are two callous protuberances, resembling horns. It may be considered, as to size, to hold a middle place between the turkey and hen. The feet are armed with a small spur.

The female has neither horns nor caruncle to the throat.

This species inhabits Nepaul, and the mountainous chain which separates Hindostan from Thibet and Nepaul.

The best authenticated species of the genus CRYPTONIX of M. Temminck is the *rouloul* of Malacca. Its most essential generic characters consist in a robust, convex, and compressed bill; the upper mandible of which, a little curved towards the point, covers the edges of the lower. The nostrils are cleft

towards the middle of the bill, and covered with a naked membrane. The orbits and lore are smooth ; the tarsi long ; and the three anterior toes are united at their base by short membranes. The hinder toe is without a claw, and touches the ground only with its extremity. The wings are short and concave; the first remex is very short, and the fourth and fifth are the longest. The tail is short, and pendant.

The rouloul is a suspicious bird, never found in the plains, but keeping close in the deep forests of Sumatra.

Considerable confusion has prevailed respecting the genus of birds called TETRAO. Some distinct genera have been erroneously united to it, and many species introduced whose characters and habits are widely at variance with those of the genuine tetrao.

Under the name tetrao, M. Temminck includes the grous proper, all the birds resembling the hazel grous of Europe, and the lagopedes. The disposition, mode of life, and principal external characters, are very similar in all the species. These birds live constantly in great forests, particularly those of mountains. The hazel-grous, indeed, frequent likewise the wooded plains, while the lagopedes are more especially confined to the frozen regions, or to the most elevated mountains of central Europe, which present a temperature nearly similar to that of the plains within the Arctic circle. They keep continually in the brambles, in the thickets, or in the accumulation of birch and dwarf-willows, which, with the pine, constitute the only trees which grow in those elevated latitudes. Leaves and berries form the principal aliment of these birds ; grains are but an accessory, of which they make little use except in time of great dearth, when every other food is denied them by the rigour of winter, or concealed beneath the deep snow. As soon as the females are fecundated, the male removes from them, and continues to live in a state of solitude. The young follow the female, who frequently does not quit them until the return of the season of

reproduction. The lagopedes alone live in numerous bands, composed of many coveys, which do not separate until returning spring. The habit of these birds is to perch frequently during the day, and always at night. They are not found except in cold climates, and very frequently in such as are exposed to eternal frost. The northern parts of Europe, Asia, and America, are their habitual sojourn. No species are found in the Torrid Zone.

The bill of these birds is short in proportion to the head; the upper mandible is very much curved from the place where it appears beyond the feathers which garnish its base; it is more vaulted than in any of the rest of the gallinæ; the nostrils are at the base of the bill, concealed by small and very crowded feathers; above the eyes is a very apparent nudity, furnished with papillæ; the tarsi are, in part, or totally, furnished with long attenuated feathers; the toes are bordered with denticulated scales, and the sole of the foot is rough. The lagopedes alone have the toes very much emplumed, but more so in winter than in summer. The first remex of the wings is the shortest; the second is very little shorter than the third and fourth, which are the longest of all. The tail is composed of eighteen broad and rounded quills. The tetrao are heavy birds, whose body is very fleshy. They announce the act of reproduction by peculiar cries and movements; their voice is particularly sonorous.

The *Wood Grous* (*Tetrao Urogallus*) is the first of the GROUS proper. It is not necessary to be very expert in natural history to see that this bird is neither a cock nor a pheasant. If ancient writers have not been agreed on so plain a point, it only shows how little the bird was known in former times. Even in later periods, vague indications, improper denominations, which might be applied to different genera, have occasioned gross mistakes concerning birds which usually avoid the presence of man; nor have the com-

pilations of transcribers, and the verbal disputes of nomenclators, served much to clear up the obscurity of such subjects.

Pliny, however, appears to have been very well acquainted with this bird, as also with the black-grous, both of which he has designated under the name of tetrao. Throughout Germany, and even as far as Holland, this grous is known under the appellation of *Auerhahn*, or *Urhahn*.

Its length is nearly three feet, and the extent of its wings, nearly four; it weighs fourteen or fifteen pounds. The female is one-third smaller in all its dimensions. The sole of the foot is covered with hard tubercles.

The season of reproduction commences with the wood grous in the month of March or April, sooner or later according to the duration of the snow which covers its native mountains; this period usually lasts until the buds of the beech-tree begin to blossom. The old male is fond of retiring to the spot which has been the scene of his early amours; he generally makes choice of the declivity of some mountain, exposed to the first rays of the sun, in the neighbourhood of a torrent where pine-trees grow; there the male, with a cry peculiar to the species, calls the females, who assemble on the ground round the tree on which he perches. This fine bird, with his eyes sparkling, the feathers of his head and neck erect, his wings extended, and his tail raised and spread out, parades proudly over the thickest branches, and often on the trunk of some tree which has fallen; in this attitude he makes the solitudes re-echo with his voice, which bears no indistinct resemblance to the whetting of a scythe; he most generally commences these cries as early as two o'clock in the morning, and continues them until day-break; he then descends from the tree, round which the females, to the number of six, and often of eight, are assembled. In the morning he accompanies them in search of food, and in the [illegible]ning he resumes his former position. This habit of the

grous is known to hunters, and would lead to the belief that it was easy to discover and destroy him. This, however, is not at all the case, for he will seldom allow himself to be approached near enough for that purpose. It is only when he is uttering those cries we have mentioned, that it is possible to get near enough to him; as soon as he is silent, the fowler should remain immoveable; the least stir, even the crackling of the leaves, or an inconsiderate movement of the eyes, will immediately drive away the grous, and when once he has discovered the danger, he is no longer to be approached, not even within two hundred paces. In observing the cautions we have given, however, the fowler can easily kill this bird, when he gets under the tree; even if he miss him, he will have time to reload his piece, as long as the grous continues his deafening cries.

It is a cry of a peculiar kind, which points out to the fowler his advantage; it may be expressed by the syllables *he-de-he-de-he*, frequently reiterated. But the grous generally commences with another cry, something like *dod*, expressed several times, and then *dodel-dodel-dodelder*, repeated with astonishing quickness and rapidity. While he is uttering this last cry, there is no use in attempting to get near him; he can perceive the slightest motion, and hear the least noise. The organs of sight and hearing in this species are perfect, to a degree which it is almost impossible to conceive.

Grous shooting, though amusing enough in some respects, particularly as an object of novelty, is, after all, not the most satisfactory of sports. The opportunity of killing one of these birds does not very frequently occur, and few who have habitually pursued this game can boast of having destroyed any very considerable number. A great fowler in Germany, mentioned by Bechstein, rendered himself quite celebrated in his native country by having killed twenty male wood-grous; he was considered as possessing the

greatest degree of skill in the art of approaching these birds.

When the male wood-grous is about to leave off the singular cries which he utters during the breeding season, the females begin to make their nests. They place them on the ground, in briars, or some other covert place; this nest is inartificial, and formed of moss. The eggs seldom exceed a dozen, and are not much larger than those of hens, though of an obtuser form. Their colour is whitish-yellow, marked with great and small irregular spots, of a clear and yellowish tint. Incubation lasts about four weeks. The females hatch with a wonderful degree of assiduity, and it is not uncommon for them to be taken alive upon the nest; in consequence of this attachment to their eggs and young, the birds of prey and foxes are enabled to make great havoc amongst them.

It is very difficult to accustom the wood-grous (and the same may be said of all the other species of this genus) to a state of domestication. The attempts made for this purpose have never well succeeded. When deprived of liberty, these birds languish for some time, and the greater number perish in less than a year. It is, however, more easy to bring up those that have been hatched by a turkey-hen.

The crop of the wood-grous is very large, and of a rounded form; the tongue is small and pointed; the glottis is provided with small pointed papillæ; the trachea descending along the neck on the left side, forms a circumvolution, nearly in the middle of its passage, over the great muscles of the neck; in turning, it ascends about an inch and a half, and then, curving again, it descends along the œsophagus into the cavity of the thorax; two muscles are adherent to the upper larynx, which follow the direction of the tube of the trachea as far as its first curve; they are then directed immediately on the lower part of the trachea, which repairs to the lungs. These muscles elongate or shorten the trachea,

After the death of the bird, they undergo a contraction, which draws the upper larynx into the bottom of the gullet, and forces the tongue, which is fast by the tail of the hyoïd bone to the cartilage which supports the glottis, to follow. On opening the bill of the dead bird, therefore, this part does not appear; this has given rise to an absurd fable, that the wood grous had no tongue. None of these peculiarities are found in the conformation of the trachea in the female.

The wood-grous is a native of the great forests of Germany. It is very common in Sweden, Norway, and all the north of Russia; from the northern provinces of this vast empire, great abundance of this kind of game is brought, in a frozen state, every winter to the markets of St. Petersburgh.

In France the species is very rare, being only found on the mountains of Lorraine. It is not found in Switzerland, though some travellers say that it has been found in countries more to the south; if so, it must have been in winter, and only on the highest mountains, for the wood grous prefers cold countries, which produce in the greatest abundance its habitual aliments. It formerly inhabited Ireland and Scotland; but if not extinct in the former country, it is exceedingly scarce, and it is very seldom met with in the latter: it was, however, once frequent in the Highlands; but, for many years, any of them that do exist there are confined to the forests north of Lough Ness. It is not known in America, and very probably does not exist there.

The *Black Grous* (*Tetrao Tetrix*) is considerably smaller than the last. The female is also smaller than the male. In Germany and the north of Europe, these birds pair towards the month of March, and often during the entire of the month of April; when the females are fecundated, they quit the males, seek some retired place in the woods, and make their nest on some eminence, concealed by grass or bushes. The eggs are twelve, and sometimes sixteen, in number, of a yel-

lowish-white, with red spots; before laying, the female collects around her nest a quantity of small wood, feathers, and leaves, to cover her eggs, when she is obliged to leave them. The incubation lasts three weeks, and the young are born covered with a reddish-yellow down. They follow the mother immediately, who conducts them to ants' nests, and into places covered with myrtle bushes, the berries of which they eat; the young do not fly so soon as those of the last species; they are two months old, before they are sufficiently vigorous to follow their mother upon trees. Both young and old are more easily accustomed to captivity than the wood-grous. Nevertheless it is not possible to preserve them for any length of time in a confined prison; they should also frequently receive those buds and berries which constitute their habitual nourishment; these are of various kinds, and grain, as with the other species of this genus, constitutes with them but an accessary aliment.

The black-grous is very wild, and remarkable for its cunning in avoiding snares of all kinds. Its habitual sojourn is mountainous countries, where the birch-tree grows abundantly; but it is also to be found in pine and beech woods, bordering on heaths, pasturages, or fields. Though not a bird of passage, it changes place more frequently and more easily than others of the genus. In winter these birds unite in numerous troops, traverse the woody mountains, and often descend into the vallies. In spring, the season of reproduction, many hundreds of them unite on some eminence covered with heath, and there the males combat desperately, until the least vigorous are forced to retire, and yield the territory to the victors; the latter then disperse, mount trees, descend among the females, assume grotesque attitudes, and utter cries, after the manner of the last described species.

There is nearly as much difficulty in killing or taking this bird as the wood-grous; still the peasants of Siberia, and

many tribes of cossacks, catch them in great numbers in traps and snares, and thus supply the markets of St Petersburgh during the winter.

The black-grous is common in all the northern parts of Great Britain, particularly in Scotland and Wales; they are found in Cumberland, and are numerous enough in Yorkshire and Staffordshire. In the north of Europe, they exist as far as Lapland; and in the north of Asia, throughout Siberia. They are also to be found, but not very numerously, in the north of France, on the high mountains of Switzerland, and the Tyrol.

The *Hybrid Grous*, as its name announces, has been supposed to be a spurious production between the two last mentioned species. The opinion that a spurious breed could arise from two distinct species in the wild state, is one that deserves very minute investigation before it can be received; more especially the opinion that such a breed could become prolific, and multiply to any great extent; such a notion is quite in contradiction to the result of our observations on the laws of Nature, who has sagely provided an innate repugnance in all species to such illegitimate alliances, and one that can be overcome only by the perversion of instinct which is produced by the superintendence of man.

But it does not appear that facts by any means countenance such a supposition. In the northern countries the woods are abundantly peopled by the two species of the wood and black grous. The want, therefore, of individuals in either, cannot oblige the one to intermix with the other. In the more central regions of Europe, where these species are less abundant, no example of the hybrid is to be found. We deem these facts sufficient against the notion of this unnatural alliance. To this we may add, that besides external differences, the conformation of the trachea and larynx is not

similar, in this, to that of the other two species; that its voice is not the same; and the eggs vary.

The hybrid-grous is said to have existed formerly in Scotland; it is especially confined to the northern regions. It is found in Russia, Lapland, and Sweden. The only example known of one of these birds being found more towards central Europe was in 1756, when an individual was shot in Pomerania.

The *Hazel Grous* is pretty generally spread throughout the central countries of Europe, and even advances to the South. Its ordinary habitat is the great forests in mountainous regions. It is a singularly wild and shy bird, and usually remains during the day under heath or brambles; sometimes it is so well concealed in some large and leafy tree, that it is almost impossible to perceive it. Most of the winged species, on the approach of danger, attempt to make a sudden escape by means of their wings; but this grous never has recourse to them, except when every other mode of flight is impossible: it depends, in preference, for its safety on the rapidity with which it can use its limbs.

Notwithstanding this, the hazel-grous can, when it pleases, fly with considerable quickness, but not to any elevation; the wings then make a very loud and rustling noise. When agitated by fear, these birds frequently raise the tuft with which their heads are ornamented, as the larks do. Their rallying cry is a kind of loud hissing; it is difficult, if not impossible to rear them in captivity; liberty appears to be the essence of their existence.

The hazel-grous travel but little, fixing their residence more habitually in the place of their birth. In autumn, they assemble in large bands, on one mountain or another, every morning and evening, and even through the day thus continue their association. In winter, they separate and live alone. They multiply very much in the north of Europe,

and inhabit the interior of the thickest woods, especially where pines and fir-trees are mixed with birch and hazel, on the buds, &c. of which they feed during winter; in summer their aliment is varied with other vegetable matter, but berries and insects are peculiarly indispensable to them. Towards the end of March or the commencement of April, reproduction begins; the male seeks a single female, and when she is fecundated, he quits her, and lives in solitude until autumn, when the coveys are recruited. The female makes her nest in the thickest and most retired parts of the forest, and covers the eggs with grass, &c., when obliged to quit them; they are generally from ten to sixteen, and incubation lasts three weeks.

This species is found as far north as Lapland and Siberia; in Russia, Sweden, and the north of Germany. The flesh is very exquisite eating.

The *Spotted Grous (Tetrao Canadensis)* abounds in the countries near Hudson's Bay, inhabiting by preference plains and low situations; the same species, however, in other regions, choose more elevated stations, and even the tops of mountains. In Canada it is called a partridge. In Nova Scotia it is abundant, and seems pretty generally spread throughout all North America, where it constitutes a useful article of food. It is preserved by the frost in winter.

The *Pintado Grous* is another native of the cold regions of North America; and is very abundant in Long Island. The eggs are numerous, and the birds live in small families during the autumn; but on the commencement of winter, unite in great bands of two hundred and more. They pass the winter in pine forests. About half an hour before sun-rise the voice of the male is heard, and he then elevates and spreads out the feathers with which his neck is ornamented.

The *Ruffed Grous* also belongs to North America. In the time of reproduction, the male raises the long feathers of

his head and neck, forming a tuft and kind of ruff; he also forms a wheel with his tail, swells his crop, trails his wings, and accompanies this action with a dull humming sort of noise, like a turkey; he also summons the females with a very singular clapping of the wings, loud enough to be heard at the distance of half-a-mile in calm weather; this exercise he repeats every day, in spring and autumn, at stated hours. When he begins, there is an interval of about two seconds between each clapping: then, accelerating by degrees, the strokes succeed each other with such rapidity that they produce a continuous noise like the sound of a drum. This, which nature intended as a signal of love, often becomes one of destruction, indicating to the fowler where he can find the bird.

These birds lay twice a year, apparently, in spring and autumn; they make their nests with leaves, on the ground, beside some dry extended trunk, or at the foot of a tree; they lay twelve or sixteen eggs, and the mother is much attached to, and very courageous in defence of, the young. They are very wild birds, impossible to be tamed; if they are hatched by common hens, they will escape, and fly into the woods, almost as soon as they are excluded. Their flesh is white, and very good eating.

The majority of the species composing the order gallinæ have been allotted mild and temperate climates for their habitation. Many of them live beneath the unclouded skies of equatorial latitudes, where the sun and the soil combine their influence to cover an extensive tract of country with the richest gifts of Nature in unlimited profusion. But this is not the case with all. Some, though the smaller number, Nature, like a step-dame, has confined to those inhospitable regions of everlasting snow, on which she appears to have affixed the seal of desolation. There, over immense and frozen tracts, in the midst of a small number of animals, live the

only species of the gallinæ which are capable of enduring the rigorous cold of those elevated latitudes. Abundantly provided on every part of their bodies with a thick down, which is again covered by a close and massive plumage, these birds are adequately protected against the inclement sky. Their feet and toes are furnished with woolly feathers, very long and close, and far more abundant in winter than in summer, to enable them to run with rapidity and ease along the declivities of the ice-clad mountains. Claws of a peculiar structure, like pickaxes, are necessary instruments to facilitate their labour in removing the snow which covers the substances by which they are supported. A snow white plumage conceals them from the piercing eye of rapacious birds. Such are the advantages bestowed, by a wise and benevolent Providence, upon beings that would otherwise infallibly become extinct in a situation where every thing external seems to concur for their destruction.

It is, therefore, only in the vast plains of the most northern parts of Europe, Asia, and America, where perpetual winter prevails, and on the lofty mountains of the central portions of those continents, that the sub-genus of the PTARMIGAN is to be found. The best known species, and most common, is the *Ptarmigan Grous*, *Lagopus* of the ancients. This bird is found in different countries of central Europe and Asia, and is also equally extended through North America, where it has suffered no alteration in its form, or in the distribution of the colours of the plumage. Its manners have also remained the same in these two parts of the globe.

These inhabitants of the cold regions of the world dread and avoid the genial influence of the sun. They are rarely found on the declivities of mountains exposed to the south. In summer they choose the sides on which they are sheltered from sun and wind, which are equally objects of their appre-

hension. Rocks, and the mountainous platforms which are elevated above woody regions, are their habitual sojourn during summer. In winter they descend into the valleys which cross between the high Alps, but never appear in the plains except when the season is extremely rigorous and the cold intense. When the mountains are enveloped in fogs, and the atmosphere announces snow or heavy rain, the uninterrupted cries of the ptarmigan are heard; but they are mute when the sky is serene, and take their flight in silence. During the powerful heat of a summer's day, they are careful to conceal themselves, and then are neither seen nor heard. Crouching beneath the tufts of the rhododendron, which flourishes in these Alpine regions, they never attempt to fly, except when one approaches near enough to walk upon them. They then set off abruptly, with a noise of their wings, which is even alarming to the traveller, who is threading in silence through those solitary mountains. These birds are wilder in proportion to the coldness of the weather, and fly away at the slightest noise. They run very fast, and their flight, though sustained but for a short time, is not so slow as might be presumed from the weight of the bird. In winter it is very difficult to perceive them on the ground, when they are crouched against a heap of snow, and also in summer, when they are under the tufts of the rhododendron, or even on the naked rocks. The colour of their plumage in these different seasons often saves them from the pursuit of the fowler, and withdraws them from the piercing eye of the kite, who watches them incessantly; but it is not true, as many naturalists assure us, that they dig deep holes in the snow, to withdraw there in case of accident, or to shelter themselves from the ardent rays of the sun; these birds only scrape the snow for the purpose of getting at the plants below it, which serve for their subsistence, for which operation nature has

provided them with long and broad claws, which answer the purposes of a pickaxe. It is certain, however, that these birds are very fond of scraping in snow that has newly fallen.

Their aliment consists of all kinds of berries which grow in their Alpine haunts—in the buds of such plants—in heath, and in Alpine grass. They will also eat various other vegetable substances; and in winter their aliment consists of the buds and leaves of the rhododendron and the pine. The female makes her nest in some secluded place, and lays from eight to fifteen eggs, of an oblong form, and an ashen-red, marked with spots and points of a blackish-brown.

The ptarmigan is a very wary bird, and therefore is generally pursued with the fowling-piece, as it will seldom get into snares of any kind—at least so says M. Temminck; but Dr. Latham tells us that it is a "silly bird, suffering itself to be caught by any stratagem, however slight." Opposing statements of this kind are no novelty among natural historians. It would seem, however, to be no easy matter to procure this bird during the summer season, if we may judge by the comparatively few specimens of it, in the peculiar plumage of that time of the year, to be found in the cabinets of natural history.

All attempts to hatch and educate the ptarmigan in a domestic state have proved utterly fruitless. To say nothing of its wild nature, it is probable that the difference of the pure and elastic atmosphere, which it respires in its native mountains, from that of the plains and valleys, will always render any undertaking of this nature entirely abortive.

In the season of reproduction, which commences about the end of May or beginning of June, the ptarmigans are seen in pairs; but in autumn many coveys unite and form bands more or less numerous.

The flesh of the ptarmigan is good, and not unlike that

of the hare in colour and flavour. In America, however, this is not the case.

This bird more particularly inhabits the central Alps of Europe. It is also extended in North America.

The *Willow Grous* inhabits the north of Europe and America, even as far as the ices of the Pole. It seldom shows itself farther south than Livonia and Esthonia. It lives and nidificates very much like the ptarmigan. The eggs of the female are larger, and of a reddish-white, marbled and spotted with blood-red.

The *Red Grous* (*Tetrao Scoticus*) is remarkably abundant in Scotland, though less so in England and Ireland. It lives on high mountains, and in desert places. In the winter it descends into the valleys, but does not appear in the plains. It lives on birds, berries, and the leaves of shrubs.

The GANGAS (PTEROCLES) are the representatives of the grous and ptarmigans in the countries situated under the torrid zone. Their organization, both internal and external, is in the most perfect harmony with the places which they inhabit. Their shape is elegant and compact; the body not fleshy in proportion to the limbs; the flesh is fibrous, and the wings are long. All these attributes are indispensable to birds obliged to support a long and continuous flight. Their feet, with broad and short toes, the hinder of which does not reach to the ground, are proper for running with celerity on the shifting sand.

The gangas inhabit the warm countries of Africa and Asia, and their passage into Europe is merely accidental. The meeting with these gallinæ is a happy presage for the traveller who is bewildered in the vast solitudes which occupy so considerable a portion of those two parts of the globe. The proximity of torrents or of fountains is announced by the presence of the gangas. These birds inhabit the confines of the desert, or sandy plains, covered only with a few strag-

gling bushes. They are fond of changing place, and traverse daily a considerable extent of country. These journies are performed for the purpose of arriving at the spots where they can get water. When the waters in their neighbourhood are dried up by the heat of the atmosphere, the gangas then venture across those oceans of moving sand, formidable to all other beings, and which the migrating birds of those regions avoid by pursuing their course along the sea coasts.

Though Nature has doomed the gangas to live in melancholy and deserted places, she has given them some benefits in compensation. They unite in those solitudes in companies of many hundreds, which separate only at the epoch of reproduction. For the rest of the year, in their numerous associations, they brave in common the perils of a hazardous voyage, or enjoy together their occasional abundance. This peculiarity applies solely to those species of ganga which have the two middle tail-feathers elongated and subulated. These live during the whole year in bands of many hundreds; the others live in companies, composed, like those of the partridges, of the male, female, and the young. They never perch. They are distinguished by long acuminated wings, from which circumstance M. Temminck has given them the name of pterocles. The first remex is the longest.

The *Ganga Chata*, (*Tetrao Alchata*), *pin-tailed grous* of Latham, is the only species found in the southern parts of Europe. They couple in the month of March, and lay in June two or three eggs on the ground without making any nest. They do not allow themselves to be approached; and when they perceive any one, they fly off quickly and very high, uttering loud cries. The aridity of the plains obliges them during the heat of summer to go, especially in the morning, to quench their thirst at the borders of ponds, &c.

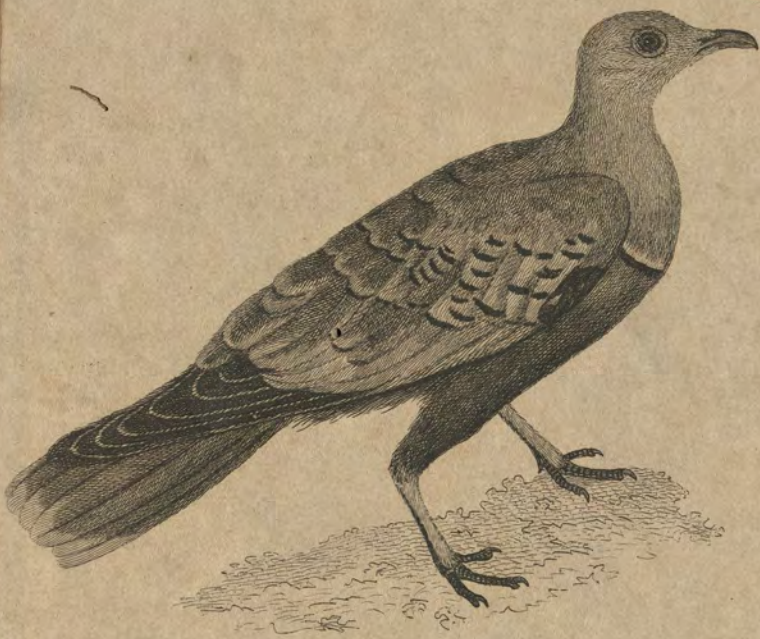
where the fowlers wait for them in ambush. Darluc tells us, that when a few shots have been fired, they stop no longer, and drink flying, and shaving the surface of the water. Their flesh is in little estimation, except that of the young.

This species is found in the south of France, Spain, and Italy; likewise in Africa, as in Barbary and Senegal. They are found in immense numbers in the deserts of Syria and Arabia.

Of the *Singed Grous* (*Pterocles Exustus*), of which the opposite is a figure, from the drawings of General Hardwicke, a specific description will be found in the text.

The meeting with the *Namaqua Grous* (*Pterocles Tachypcetes*) is a happy omen for the thirsty traveller amid the burning plains and sandy billows of the South African deserts. When he perceives at a distance the troops of this ganga alight on some particular spot of this sojourn of death, it assuredly indicates the presence of some reservoir of water. Levaillant, in his travels in that country, was more than once preserved from imminent danger of perishing by following the course of these wandering birds, who were directing their accelerated flight towards rocks, whose hollows frequently contain depôts of water. But when their bands, composed of many thousands, pursue their wandering course until they are out of sight, it is a proof of the total aridity of the soil; then the unfortunate traveller has little prospect except of an untimely end in the midst of these inhospitable wastes of choking sand.

When the springs are totally dried up in the desert, these birds visit the countries which are intersected with water, and approach the neighbourhood of the Cape. Towards the rainy season, however, they are to be seen no longer in this latter locality, but direct their flight back to the deserts situated under the Line and the Tropics. On the confines of these they make their nests in tufts of grass and bushes.



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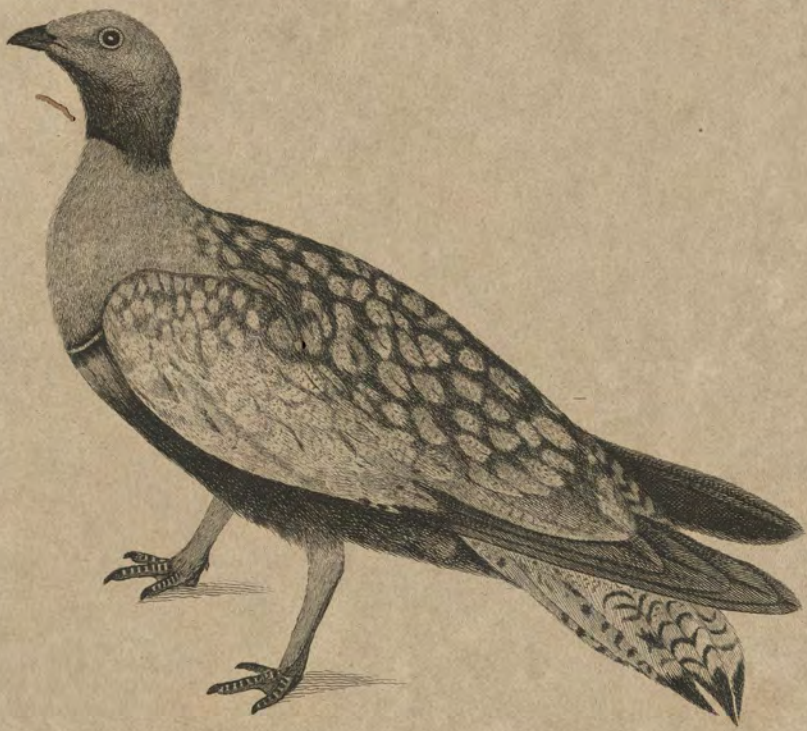
THE SINGED GROUS.

PTEROCLES EXUSTUS. Male.

Mus. Genl. Hardwick.

London. Published. by Whittaker & Cº. Ave Maria Lane. Aug. 1829.



SAND-GROUS.

TETRAO ARENARIUS.

Mus. Gen.l Hardwick.

London, Published by Whittaker & Cº Ave Maria Lane, Aug.1829.

The females lay but four or five eggs at most, of rather an olive-green, marked with a great number of black spots. They are granivorous and insectivorous.

This ganga lives in the entire of South Africa, and is probably the same species which visits the banks of the Niger and the Gambia. It passes into those countries when the sources and torrents which descend from the mountains are dried up in the deserts. In summer, it is found in the territories of Senegal.

It is in the sandy plains of the southern part of the vast empire of Russia, as well as in the deserts which extend to the north of Africa, that the *Sand Grous* (*Pterocles Arenarius*), abound most.' Pallas, who discovered the species towards the sterile territory of Astracan, and on the banks of the Volga, says, that during the day they are to be seen advancing in couples to the water, and that they fly like pigeons. Though, properly speaking, this ganga is not a native of Europe, it would appear that it sometimes passes the limits which nature has assigned, and migrates from the African coast across the Mediterranean into the southern provinces of Spain. From the deserts of Asia too it sometimes, though more rarely, extends its voyages into Germany. In the burning regions of Africa, where alimentary resources must often fail, the species is constantly of an inferior size; while the individuals killed in the fertile provinces of Spain are of larger dimensions, their plumage is finer, and their colours are more lively. Such differences are common with all animals, but more particularly with those that feed on vegetables and seeds. This observation is applicable to many species of the gallinæ, and to a great number of other exotic and indigenous birds. It is particularly true of those that live in the desert plains of the south of Africa, compared with individuals of the same species, but inhabiting a more

favourable climate, where the Nile and the majestic Niger spread fecundity around.

The opposite figure, from the drawings of General Hardwicke, appears to refer to a variety of this species which inhabits India. The head, neck, and breast are greyish-white. Each side of jaw and throat incline to rufous. A transverse crescent of black beneath this, and a double bar of black across the breast. It is pale towards the vent, with transverse dusky lines. The back and wing-coverts dusky-brown, the quills and tail black, and the latter very cuneiform, with the feathers white at the end. Such is the variety which Dr. Latham thinks is probably a female; but General Hardwicke's bird differs in having the fine rufous, beginning at the chin, and passing round the neck below the nape, more than an inch broad. The tail is not much cuneiform, ferruginous-buff, mottled dusky, and barred with black; the ends of the feathers are black and pointed. A short spur above the hind toe is wanting in both. This perhaps is a male.

Among the birds over which man has acquired a sort of empire, the PARTRIDGES deserve enumeration. Though their wild disposition will not bend to a complete and permanent servitude, it has nevertheless in our countries assumed a very sensible inclination towards a state approaching to domestication. These shy inhabitants of our fields have at least become our tributaries, and we have even succeeded in bringing up some species in a domestic way. They do not, however, propagate so well as the pheasants, though, with a view to the table, they are not without their share of usefulness.

The partridges are not only persecuted by men, but are also exposed to the frequent attacks of small carnassial quadrupeds and rapacious birds. These carry on against them an obstinate and destructive warfare. Pursued on the surface of the earth, which they do not quit but on the most immi-

nent danger, their flight, though usually of short duration, is accompanied with other perils. It is then that the kite, the hawk, the kestril, and other predatory devastators of the air, dart upon them with the rapidity of lightning, or harass them by continual pursuit.

Inhabitants of the plains and open fields, the partridges show a decided preference for corn countries. They do not take refuge in coppices or vineyards, except when pursued by their common enemies. They are never known to retire into thick forests, or perch on trees whose umbrageous foliage presents to other species of the gallinæ a sure asylum against the cruel fangs of the tyrants of the air, and where they may escape even from the obstinate pursuit of man, though environed with all the apparatus of destruction which human ingenuity has contrived.

Certain divisions adopted by our author in the genus *Perdix*, have been necessitated by the differences of conformation or habits observed in certain of its numerous species. The true partridges, as we have observed, never live in forests; they do not perch habitually, and never frequent humid or marshy situations.

All the *Francolins* live in forests along the banks of rivers. They perch on trees during the day, and always at night they frequent marshes and humid places, where they find a different sort of aliment from that which the true partridges are habituated to seek in open plains and cultivated fields. These are marked differences of habits and manners; but the disparity of form is not so great. The existence of one or two spurs on the tarsi of the males of francolinus can hardly be admitted as an essential difference; were it so, the females of these birds should be ranged with the genuine partridges. It is perhaps equally hazardous to admit as the only distinctive character of the francolins a longer and more curved bill than is found in some partridges, as this may be found in other subdivisions. A bill of this kind is an useful instru-

ment to the francolins, as they subsist for the most part on small bulbous plants, concealed by a hard and often stony soil. It appears, therefore, quite sufficient to distinguish them subgenerically as our author has done.

Speaking generally of these birds, including the Colins, or American quails and partridges, they are very much multiplied in temperate climates. The burning sky of the torrid zone appears to be particularly favourable to them. Some species also brave with impunity the cold of the frigid zone, for the grey partridge is found in the extremity of Sweden, and even in Siberia. The partridges live in couples. It most usually happens that, when once united, they seldom separate until death; though the female alone is charged with the care of the eggs, the male seldom quits her. He never removes far from the nest, and when the female is employed in providing for her subsistence, the male places himself near the nest to guard it, and prevent the approach of animals that would prey upon the eggs. When the young are excluded, the father and mother assemble them under their wings; then the male takes an active part in the cares of progeniture. It is he who warns the young by his cries of the least sign of danger, or he takes to flight the first, and at this signal the entire troop follow him. The covey, generally sixteen or eighteen in number, remain united during the entire season, and do not separate until the return of spring. The francolins assemble in the evening in families on the trees, while the true partridges unite in a small space on the ground. In some countries of America where venomous reptiles abound, the colins pass the night on thick branches of trees. They all feed on green corn, on many kinds of grains and seeds, on chrysalids, and on insects. The song of these birds is a certain indication of the approach or decline of day. The francolins have a hoarser and more sonorous voice than the partridges properly so called. The discordant sounds which they utter morning and evening,

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Mus. Edinburgh.

SANGUINE PHEASANT.

P. CRUENTUS.

London. Published by G. B. Whittaker. June 1828.

OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

C. Hamilton Smith Esq.r del.t
Museum. Philadelphia.

LOUISIANA GROUS.

LAGOPUS LUDOVICIANA.

London. Published by G.B. Whittaker & C.o Ave Maria Lane. Oct.1819.

have some affinity with those of the pintado. The flesh of this genus is very succulent, and agreeable to the taste.

The body of these birds is a little oval and compact. To the rounded head is attached an oblong bill, rather strong, conical and curved, and more wide than high at the base. The upper mandible is slightly inclined, curved strongly towards the point, and covers the lower. The nostrils are basal, projecting, and half-closed by a vaulted and naked membrane; the feet are naked, and armed, in the male francolin, with one or two spurs, and in the partridges proper, provided with a tuberosity, more or less apparent. The toes are four in number, and the front ones united at the base by a short membrane; the wings are short and rounded; the three external remiges, which are the shortest, are equally graduated; the fourth and fifth are the longest; the tail is short, inclining towards the ground, and very slightly graduated. It varies in the number of quills, according to the different species.

We should have noticed at page 356, under the division of ptarmigan, the figure of the *Louisiana Grous*, or *Ptarmigan*, from a specimen in the Museum at Philadelphia. The forehead, neck, before, and breast, are dingy; the hind head, nape, and back part of neck, slate-coloured, with white meshes; the mantle is dark chocolate, with numerous small darker transverse lines; the quills and tails are blackish, the former white-edged, and the latter with several regular lozenge-shaped white spots. It inhabits the province from which it is named.

The name *Francolin* (*Tetrao Francolinus*) is the *Francolino* of the Italians. This name is applied to different birds, but more particularly to this species, on account of the exemption which it enjoys from being shot at indiscriminately, on account of its rarity and the excellence of its flesh. The birds of this species inhabit low and humid

places; they live in couples during the laying season, which is the month of June. Perched upon a clod of earth, or a bush of no great elevation, the male repeats his peculiar cry many times in succession, which may be exactly represented by the syllables *tre-tari*. If pursued, the francolin rises to the height of about eight or nine feet, flies [redacted] and proceeds to fix itself on another clump. If [redacted] anew, it repeats precisely the same operation. If [redacted] dislodge from its second post, it flies away no longer, but runs along the ground with great rapidity, and conceals itself in some thick bush, where it remains with so much obstinacy that the dogs cannot oblige it to quit.

The francolins are not very common birds either in Italy, Sicily, or the Archipelago, which, however, are their usual habitat.

The *Sanguine Pheasant* (*P. Cruentus*) so named by General Hardwicke, belongs to this division, and is described at page 47.

The *Common* or *Grey Partridge* lives in most of the temperate climates of Europe: it is not found in Norway or Lapland. It is rare on the coast of the Mediterranean, and not seen in the Archipelago. It delights in champagne countries, where it can find large meadows and corn fields. There it lives in troops, usually called coveys. These partridges do not retire into vineyards and coppices, unless when they are pursued; but they always return to sleep in the plains on the ground, for they never perch. Their social state lasts until the month of April. If the hunters pursue and separate the covey, they soon hear the rallying cry, and instantly reassemble. On the commencement of spring, the partridges pair. Then begin desperate combats between the males, in which the females not unfrequently join.

When a couple are once united, they return to occupy themselves with the care of their new family. Though the male does not partake the incubation, his fidelity to his companion

is very great, and he never couples with a female that is not paired, while his own is occupied in hatching.

The female of this partridge does not take much trouble in the construction of the nest. A few blades of grass, collected in a hole of no great depth, and of indeterminate form, are sufficient for her purpose. There she deposits from fifteen to twenty eggs, of a yellowish colour, tinted with greenish, without any spot. The partridge sits for three weeks. During this time the male never removes to any distance from the nest. He acts as a sentinel to warn and defend the female from the dangers which may threaten her. The little ones can run immediately on their exclusion from the egg, which takes place towards the end of June. Then the male and female unite to conduct the covey, which she often shelters under her wings. She exposes herself with intrepidity and courage to defend them, and often employs considerable address for this purpose. She will present herself before the dogs which pursue them, trailing her wings, counterfeiting lameness, and flying only just so far as not to be taken, but not far enough to make the fowler despair of the chase. A little after the male rises, the female flies off in another direction, alights at a sufficient distance, and returns, running very fast, to her little ones, which she reassembles by a peculiar cry. The family thus live united until the following April.

The partridges live on insects, especially during their early age; afterwards they feed on grains, corn especially, which they know very well how to get out when the earth is covered with snow.

The *Guernsey*, sometimes called the *Red Partridge*, is a little more bulky than the last, and its flesh is in greater estimation. This species is considerably extended in the South of France and in Italy; but, according to M. Temminck, is never seen in Germany, Switzerland, or the north of France. There have been some vain attempts made to cause it to multiply in Bohemia, where pheasants have been brought to

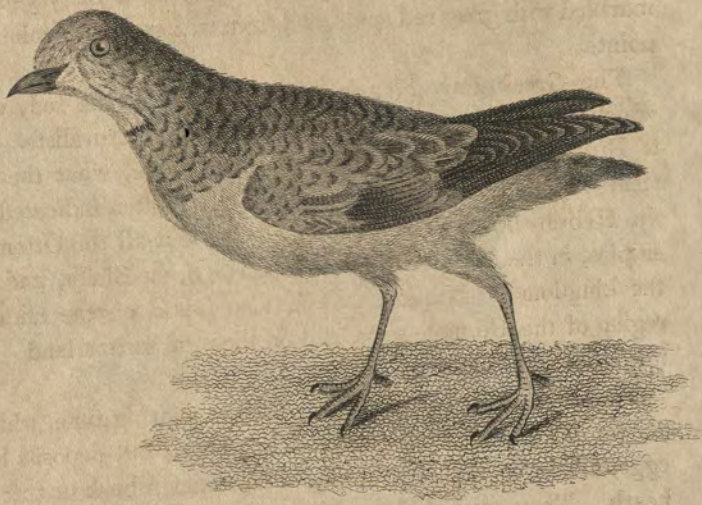
endure the climate. It does not exist in some islands of the Archipelago, according to Tournefort, who, however, probably speaks of the Greek partridge.

This species is less social than the last. The same degree of union does not prevail among its flocks. The male does not partake the incubation, and leaves the care of the family entirely to the female. She nestles in the fields and bushes, and lays from fifteen to eighteen eggs, of a dirty yellow, marbled with great red spots, and sown with small ash-coloured points.

The *Greek Partridge* is more bulky than the red, with which it has been frequently confounded by naturalists. To it Buffon refers, and apparently with reason, what the ancients say concerning the partridge. It is often indicated in the Hebrew books. It is spread throughout all the Ottoman empire, in the islands of the Archipelago, in Sicily, and in the kingdom of Naples. It is also found on the middle region of the German Alps, and on those of Switzerland. It never descends into the plains.

These birds live in troops until the pairing time, which occurs in June. The female makes no nest, but deposits her eggs, fifteen or eighteen in number, under a bush or tuft of heath. They are reddish yellow, with slight red spots, and are hatched in about three weeks. This species live on insects, the larvæ of ants, and during winter on the buds of different evergreens, &c. The flesh is white and much esteemed, though it has a slightly resinous taste, and is rather bitter.

The QUAILS all have one common character, which is easily recognised. The first quill of the wing is as long as those which follow it; while in the other partridges it is much shorter. We insert a figure of apparently an undescribed species from the Island of St. Lorenzo in Callao Bay. The head, neck, back, and wing-coverts are light-buff, with lunated obscure spots; the quills are blackish; and the throat, belly, vent, and thighs, blue-white.



C. Hamilton Smith Esq.r del.t

St LORENZO QUAIL.

London Published by G.B. Whittaker Oct.1828.

C.Hamilton Smith. Esq. del.

GUIANA PARTRIDGE *Lath.* URU *Azara.*

ODONTOPHORUS. RUFUS. Vieill.

London. Published by Whittaker & Co. Ave Maria Lane. Oct.r 1829.

The *Common Quail* (*Tetrao Coturnix*), is celebrated for the voyages which it performs at stated periods. It also differs much in its habits from the partridges, which are sedentary birds; its plumage is rather varied. The quails are isolated birds, and it is rare to find two of them in one place, except when they assemble for the purposes of migration. They are polygamous, and the male pays no attention to the covey. The female lays on the ground, most frequently in corn fields, from eight to fourteen eggs, of a not very deep green, with brown or blackish spots, and very small points.

As soon as the young quails can provide for themselves, the female abandons them, and they soon separate to live in an isolated state until the period of their migration. At this epoch they unite and fly, in numerous bands, most usually by moonlight, towards the south of Europe, cross the Mediterranean, and proceed to Africa, where they are extended as far as the Cape of Good Hope.

In the commencement of autumn, a great quantity of them are taken in the island of Capri, at the entrance of the Gulf of Naples. Formerly this constituted the revenue of the bishop of the island, who was thence facetiously styled *Bishop of the Quails*.

During this period of migration the islands and rocks of the Levant are so covered with quails, that they are salted and preserved for the winter's provision. It is said that they alight at Malta only when the wind is north-west, which is against them in their course to Rovina; and on their return they always follow the south-east wind, which hinders them from landing on the Barbary coast. They are sometimes so fatigued in crossing the sea, that they drop upon the decks of vessels, and suffer themselves to be taken by the hand.

The Colins, or *American Quails* and *Partridges*, approach the true partridges in the force of the bill, which is

often emarginated at the extremity, and in their size. Like the quails, they are migratory birds, and all the species belong to America. There is nothing very novel or interesting in their habits. The *Odontophorus*, or *Guiana Partridge*, of which the opposite original figure is given, is separated generically from the colins by M. Vieillot, from some peculiarities in the bill. It is called *Tocro* by the natives of Guiana, which word is expressive of its cry. In habits it resembles the partridges, but perches on the low branches of trees, more, as it would appear, through necessity than choice, for the purpose of avoiding the serpents and ferocious quadrupeds with which the country is infested.

The birds of the division TURNIX are pigmies among the gallinæ. The volume of their body is not as considerable as that of the thrush. They are polygamous, and live in sterile countries among herbage, and on the confines of deserts. They run much faster than they fly, and even with an astonishing degree of rapidity. They thus escape their pursuers; and by concealing themselves in tufts of grass. It is more easy, however to seize them, when their retreat is discovered, than to make them take to flight. The young and old live solitary, never uniting in bands.

Their manners are very little known. Their food appears chiefly to consist of insects.

This genus is spread through Africa, and the warmest parts of India and New Holland. Two species inhabit the most southern provinces of Spain. The Javan species, as is mentioned in the text, is made to fight after the fashion of our cocks, and very large sums are staked on this *humane* amusement.

The genus SYRRHAPTES, composed of but one species, the *Heteroclite Grous*, has chosen for its dwelling-place those countries least frequented by man. In the arid plains of Austral Tartary, towards the lake Baikal, Professor Pallas

HETEROCLITE GROUS. *Lath.*

TET PARADOXA. Pallas

London. Published by Whittaker, & Co. Ave Maria Lane Oct. 1829.

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SPOTTED-NECKED TURTLE.

COL. TURTUR. Lin. Var.

Mus. Gen. Hardwick.

London Published by Whittaker & C.° Ave Maria Lane Dec. 1819.

discovered this rare and singular gallina. In manners and some points of conformation it does not differ much from the genus ganga; but it has many characters peculiar to itself. It has but three toes, directed forwards; they are united as far as the claws. The bill is grooved through its entire length. The two external remiges are very long, and subulated towards the point. The feet are covered to the claws with woolly feathers, and the sole is rough.

The name TINAMOUS is given to the birds of this genus by the natives of French Guiana. The colonists and the South American Spaniards call them partridges, but their characteristic attributes are very different. They are plentiful in the forests of Guiana, and are an excellent and very common game; their flesh is white, firm, and succulent. Its taste approaches that of the partridge. These birds feed on cherries, wild beans, the fruits of the palm, called *comon*, and even the coffee-berries, when they enter plantations which border upon woods. They collect there fruits of different kinds on the ground, which they scrape after the manner of hens. They are also insectivorous. Almost continually on the ground, they seldom perch except to pass the night, and always on the lowest branches of trees and shrubs.

These birds, which are found in Brazil as well as Guiana, and probably in other parts of South America, have all the habits of the gallinæ. They fly heavily, and run swiftly; they are usually to be met with in small troops, and in the season of reproduction, in couples; they have two broods every year, and both very numerous. The females lay in a hollow, which they form by scraping the ground on a bed of dry grass. Their rallying cry, which is heard most frequently in the morning and evening, is a long, trembling, and plaintive hissing, which is imitated by the hunters to attract them within reach of gun-shot.

They resemble the partridges in the great number of their

eggs, in laying them on the ground, in being pulverators, and in never perching; also in their timid character, heavy, short, and noisy flight, the rapidity of their running, in their fleshy stomach, and in their size. Nevertheless, the differences between these two genera are greater than the resemblances. The tinamous do not go into the open country, and unite rarely in pairs. The young, even when recently excluded, run in various directions, and are seldom seen properly assembled. They feed on caterpillars more than on grains, and prefer uncultivated to cultivated lands. They also differ in many points of conformation.

These birds are clamorous, especially in the morning and evening, and some of them during the entire day; they are not very sociable; they are so indolent that they often remain during the entire day in the same place; their walk, however, is lively and agile, and their course rapid; the flight is low, horizontal, and direct; the deficiency of tail hinders them from turning with facility when they fly; they seldom attempt this motion but when forced, and are very soon fatigued by it; they do not drink.

Some species inhabit the fields; others remain in the woods, not quitting the most covered districts, but seldom fixing themselves on trees. These last are distinguished from the others by many attributes;—they fly less, and only when disturbed; they seldom go in this way above forty paces; they are also more distrustful than the others. We have no farther details of any interest to add here concerning the species.

We now come to the last family of the gallinæ, according to M. Cuvier's arrangement,—that very numerous one of the Pigeons. As these birds seem naturally to constitute the passage from the passeres to the gallinæ, we cannot help thinking that their proper place would be at the head, instead of the tail of this order; the truth is, that this genus has no

very marked connexion with any other. It forms a distinct group, to which the name of order has been sometimes given, and sometimes that of family. We shall not trouble our readers with the various allocations of these birds by ornithologists, nor do we deem it necessary to enlarge on the generic characters in the text.

The birds of this genus, which contains more than one hundred species, inhabit all the warm and temperate regions of the globe. The species with short and robust bill are found throughout the whole extent of Africa, in the islands of the Indian Archipelago, in New Holland, and in the islands of the South Sea. None of those which belong to the division Vinago, have been found in Europe, North Asia, or either America. The common pigeons, with moderate bill, are the most generally extended through both continents. Those with slender bill and long legs are proper to the climates of the New World, of Africa, and of Asia, but are not found in Europe. Only four species of the common pigeons are found wild in this last part of the globe; from one of them, the biset, as is supposed, are descended all the various races which we find in a state of domestication.

The pigeons are diurnal and quiet birds, living only on pulpy fruits, berries, and grains, and but very seldom on insects and snails. They are eminently monogamous. The male and female concur in the construction of the nest, and fix it, according to the species, sometimes on the summits of the largest trees, sometimes in the bushes, and even on the ground, and sometimes in the cavities of rocks. This nest, rather rudely composed of small branches and leaves, is very wide, and usually contains but two eggs, and sometimes four. In one species only of the gallinaceous pigeons, the female lays six or eight. The male and female sit on the eggs, alternately, or together. They have two or three broods in the year, and after the last, they quit the climates

where they nestle, to migrate into more southern regions. There are at least very few exceptions to this fact. The borders of forests, and the neighbourhood of waters, appear to suit them best. They do not appear in very numerous flocks, except at the periods of their migrations. Their flight is noisy, and not very light, but they can sustain it a long time. As these birds do not digest the seeds of certain fruits, they propagate the vegetable species in their voyages by voiding the seeds with their excrements. It is thus that the multiplication of the nutmeg-tree may be explained in islands where no traces of it were to be found at no very remote era.

The pigeons are extremely amorous, and exhibit their propensity this way by certain accents of the voice, which have been denominated *cooing*.

When the young are born, the parents watch them with the greatest assiduity; and they have need of these cares, for they are almost naked, blind, and very weak, and not able to run and seek their food like the young gallinæ. Accordingly, the parents disgorge the food which they have amassed, and placed in reserve in their crop. One species alone, the *goura*, is an exception to this rule, whose little ones, six or eight in number, are clothed with down at their birth, and run immediately in search of insects.

Of the pigeons' eggs, in general, which for the most part are but two, one produces, almost always, a male, and the other a female. The individuals thus born and brought up together, never quit each other, and shew the most decided mutual attachment.

Levaillant has established three sections among the species of the pigeons, which have been generally admitted by ornithologists, and among the rest by the Baron. They are founded on differences of manners, and on some external characters.

The first is that of the GALLINACEOUS PIGEONS. It com-

prehends those which have the closest analogy with the gallinæ properly so called, by their habits of remaining constantly on the ground, and nestling there, or, at least, on very low branches. Also by their laying a greater number of eggs than the others, and their young ones being able to seek their food immediately on quitting the shell. These species have a slender and flexible bill, and longer legs than the others.

The second is that of the PIGEONS properly so called, which have the bill moderately slender and flexible. The tail is sometimes straight, or rounded at the end; and sometimes greatly graduated, and formed like a cone. These birds nestle on elevated trees, or in the cavities of rocks, difficult of access; lay two or four eggs, and are very careful of the young for a long time, which are born very weak, and almost naked. The turtles are attached to this section.

The third is that of VINAGO, which are recognised by the grosser and more solid bill, compressed at the sides. Also, by their short tarsi, well bordered. They live on fruits of all kinds, and in deep woods. Their disposition is excessively wild. They nestle on the tops of trees. Their nest is composed of small branches; the female deposits in it two eggs, which the male and she hatch together.

The first species of the first division, the *Carunculated Pigeon* (*C. Carunculata*), was made known by Levaillant, in his African Ornithology. It must considerably attract the attention of the naturalist by its marked discrepancies, in manners and habits, from the greater portion of known pigeons. It may be observed, that the division of gallinaceous pigeons is not based upon characters proper to all the species which compose it; it is, in fact, only a division under which all those pigeons are united, which, in their external form as well as manners, exhibit some analogy with the different genera of the gallinæ.

The bird now under consideration approaches, in its exterior, port, and manners, the nearest to the true gallinæ of all the pigeons. The form of the bill is like that of the latter birds, and the nature of the feathers; but in the red and naked wattle, the long tarsi, the rounded body, the pendant carriage of the tail like the partridge, and the rounded wings, it entirely corresponds with the former. These characters constitute this bird a proper link between the pigeons and the gallinæ.

The carunculated pigeon nestles on the ground, in a small hollow, covered with grass, &c., and the female lays six or eight eggs, of a reddish-white; the mutual incubation of both parents is a characteristic trait of columba. The little ones, covered with a reddish-grey down, run immediately on quitting the shell; they do not leave the father and mother, who lead them continually about, and shelter them from cold or sunshine with their wings. The nymphæ of ants, dead insects, and worms, constitute their earliest food, and afterwards all kinds of grain, berries, and insects. They do not separate into couples until the season of reproduction. This species is native to South Africa.

The *Great Crowned Pigeon*, or *Goura*, has, perhaps, a still greater external analogy to the gallinæ, at all events, in size; it even may be considered to stand isolated in its own division. It bears such a resemblance to the hoccos, that it wants nothing but their bill to represent one of them completely; but in manners, as well as in some points of conformation, it is closely allied to the pigeons. It has their bill and voice; like them it lays but two eggs; feeds the young by disgorging the aliment; and builds its nest on the summits of trees. This last habit removes it not only from the gallinæ, but also from its own division. Thus we find, upon the whole, that while the goura has the strongest external resemblance to the

true gallinæ, it approaches more in manners to the genuine pigeons than any other species of its own subgenus.

This bird is a native of New Guinea, and of various isles of the Eastern Ocean. It requires pains and difficulty to accustom it to our climates.

The *Nicobar Pigeon* is distinguished by its brilliant plumage; but it wants the elegant shape which distinguishes the true columbæ. Its manners are very analogous to those of the gallinaceous birds. It remains, by preference, generally on the ground. It runs with great celerity, and constructs its nest like the partridge. It never perches, except to pass the night. Its cooing is hoarse and dull,—not nearly so agreeable as the voice of the ringdove. It is a stupid and quiet bird, and might possibly be domesticated. It inhabits Sumatra, Nicobar, and other islands of the Eastern Ocean.

Of the ORDINARY PIGEONS, indigenous to our European climates, the *Ring Pigeon* is the largest; it does not inhabit Europe at all seasons of the year; for the majority of these birds emigrate in November, and return at the commencement of March: in the more northern countries, they do not reappear until April. Their migration always takes place fifteen days or three weeks after that of the stock doves. They do not fly with so much celerity as the latter; but they rise higher, and their flocks are not so numerous. In Italy and all the south, the species is sedentary. They prefer pine and larch trees to the forests of oak and beech.

This pigeon has two broods annually; the first is in April, the second in July. They fix their nests on the tops of the highest trees. The eggs are two, and very seldom three in number, the male and female sit alternately, and the incubation lasts sixteen or eighteen days.

The ringdove is fond of perching on the high branches of some dead tree, a habit which it shares with almost all birds of a wild and distrustful character. From this position,

as from a watch tower, the bird can perceive his enemy at a distance, and provide for his own security.

It is difficult, in consequence of this suspicious disposition, to approach the ring pigeons very nearly. Their greatest enemies are the marten, the kite, and the falcon. The fruits of the pine, the fir tree, and the larch, constitute their principal food; they are also fond of beech-mast and acorns. It is said, that when they are fed on myrtle-berries, their flesh acquires an exquisite flavour.

Buffon supposes that the largest races of our domestic pigeons proceed from the ringdove. This supposition is doubtless erroneous, as we do not find among them any indications of such an origin, and the ringdove, will not propagate with the biset, even in a state of captivity. The ring pigeon is found in many countries of Asia and Africa, as well as in Europe.

The *Stock Pigeon* is a wild species, like the last, with which it has considerable affinity in its mode of life and disposition. They are fond, however, of the society of their consimilars, and are seen to fly in great bands, either on their arrival or departure. Many coveys from the same district unite for this purpose, and fly only during the day, but halt most generally in lofty forests. In the month of October, the stock dove emigrates to a milder climate, and returns about March, usually revisiting, in preference, the peculiar districts which it has occupied before, in the preceding year. In fifteen days or three weeks after its arrival, the band separates into couples for the purpose of reproduction. They live and nestle in woods, preferring the lofty trees that grow in the neighbourhood of cultivated countries; they sometimes make their nest in the hole of a worm-eaten tree, but never in those of old towers, &c., like the biset pigeon. They live on all kinds of grain.

This pigeon has two broods, annually, and the young are

able to fly at a month old. The flesh is preferable to that of the ringdove, and is of a very exquisite flavour.

From the wild *Biset Pigeon* it would appear that our domestic races have sprung. It inhabits all the old continent. It lives in flocks, and nestles in the holes of trees and rocks; from which last peculiarity, it has sometimes been called the rock pigeon. In domestication, one variety has been preserved, which keeps the colours of the original, and is of the largest size. The tame bisets will resume their liberty, when within reach of wild ones, and these are the individuals which we see nestling in the midst of towns, in the cavities of old walls, and the arches of bridges. The reverse will also sometimes take place, and we find the wild bisets quit their independent state, to mix with the pigeons of the dove-cotes, and continue to live with them.

On the *Domestic Pigeon* we shall be forced to dwell a little more in detail, though our brief space must of necessity confine us to observations of importance, and, indeed, prevent us from embracing a very large number of interesting facts connected with this species.

The domestic pigeon has branched out into an immense number of accidental varieties, the handsomest and most variegated of which, being preserved secluded from others and paired together, have successively engendered all those various races, of which man is the mesne creator, and which without would never have existed.

Though the domestic pigeons are voluntary captives, they will sometimes abandon the establishments which we have provided for them, return to their ancient state, and nestle and bring up their progeny in old towers, or the hollows of trees. Their offspring, however, often return to the places abandoned by their parents.

Buffon says, that the pigeons of our dove-cotes are but half-domesticated, and still retain the instinct of flying in

flocks. They often produce three times in the year, lay, within an interval of two days, almost always two eggs, and but seldom three. They never bring up more than two young ones, one of which is usually a male, and the other a female. Many, among which are the youngest females, lay but once. The spring brood is the most numerous, at least in our European climates. The dove-cotes should not be placed too near our habitations. A quiet place, a fine prospect, an eastern aspect, and an elevated situation, suit the pigeons best.

The pigeons are, as we know, granivorous birds, and though many wild species feed on insects, our domestic races do not follow this example, except in cases of necessity. They may, however, be brought to eat minced meat. Of lettuce and sorrel they are particularly fond, and also of sea-salt; this last substance cannot be nutritious, but it is very salutary to these birds; it facilitates digestion, and is frequently an excellent remedy for many of their complaints. It possesses so much attraction for them, that they are frequently known to undertake voyages in search of it; they will sometimes travel many miles from their habitual sojourn, to reach the sea coast for the purpose of obtaining it; there they may be observed, for hours, searching for it among the cliffs, and picking the *detritus* of various substances which are impregnated with it. The saline springs which are found in different countries, are also visited in this way by the pigeons in their neighbourhood. From the observation of this habit, a practice has prevailed, from time immemorial, of giving marine salt to domestic pigeons; but it is to be noticed, that if a moderate use of it be beneficial to these birds, the excess of it is exceedingly prejudicial. Given in a combination or confection with farinaceous substances, it is found to be injurious; it renders such substances difficult of digestion, which might be well conjectured from the known fact that salted provisions of all kinds are more or less indigestible. Salt, as an accompaniment

to food, is wholesome to all animals, and an aid to digestion; but when it forms an intimate ingredient, and the aliment is saturated with it, it produces an effect directly the reverse. In the one case, it acts as a salutary stimulus on the organs of taste and digestion; in the other, it exhausts the succulency of the food, and renders it dry, hard, and improper for assimilation. Thus, though salt is itself a most powerful antiseptic, we find salted provisions eminently productive of scorbutic diseases. The birds, therefore, of which we are speaking, should receive their salt, much in the same way as we generally take it ourselves, in moderate quantity,—not mixed with their food, but placed for them to help themselves when they think proper.

From this fondness for salt, and the dry quality of their food in general, pigeons are great drinkers. Water should be abundantly supplied for them, and attention paid to its qualities of sweetness and purity. River water is the best for them. Spring water, which is always more or less impregnated with earthy salts, is by no means so proper for these birds. It is remarkable enough that they may be brought to drink warm water, and even sometimes at a very high degree of temperature. It is imagined, that in some cases, this, as well as warm bathing, is advantageous to them. Mineral waters have also been administered to them, with good effect in many cases.

The sense of sight is very perfect in these birds. Surrounded as they usually are by dangers, and unprovided with the weapons either of attack or defence, they would be constantly open to the attack of rapacious birds, if nature had not bestowed on them such powers of vision. Their eyes also possess wonderful mobility, and can be directed every way, according to the will of the animal. Besides this, the quickness with which this bird can assume all attitudes, assists wonderfully the operations of the powers of vision. It has

also the power of moving both lids of each eye, by which it can remove the luminous rays that would impede vision, and receive those alone, which bring the images of objects in certain directions.

It would also appear that the hearing of these birds is tolerably perfect. A story is told of a pigeon that was continually attracted to the window of an apartment, where a young girl used to play an air of Handel's on the piano; every time the bird heard this, it would leave every thing, even the nest. It cannot, however, be at all supposed that the organ of hearing is so perfect in these birds as in many of the passeres and climbers.

Their taste seems to be peculiarly delicate; they will for a long time examine and touch with their tongue any food which is presented to them, and to which they are not accustomed. They can only be habituated to drink mineral waters by totally depriving them of all other kinds. They show a most extreme repugnance for everything bitter.

The pigeon, though inferior in this respect to many other animals, is not at all devoid of intelligence. All these birds have the faculty of memory, and certain races more than others. Some seem to transmit it to their adulterated offsprings. Thus the carrier pigeon possesses to a high degree the memory of the places which it has inhabited, and shows a decided bent, very difficult to overcome, for returning there. But they not only remember places, but modes of action; for instance—if any particular method of catching them in an aviary has been adopted, they will afterwards recognize the least gesture that was employed in such an operation, and take their measures to avoid its effect. Still it must be owned, that although they recollect, and for a long time, whatever has been dangerous or disagreeable to them, they have not the same remembrance of favours, or recognition of those who have fed and cherished them.

Pigeons are known to dream; they utter cries and employ gestures in their sleep, which clearly prove it: and at such times their slumber is so profound that they may be taken without any difficulty.

It is not very easy to believe that the combined operations performed by these birds, and almost always varied, according to present necessity,—to accomplish any desire,—to recognize the places in which they are,—to choose the direction in which they shall take their flight,—to slacken or modify their motions, as occasion may require, &c.,—are the mere result of instinct. Instinct can hardly teach them to feign designs, and to distinguish the nature of the danger, that they may oppose to it the most certain preventative. Instinct is not susceptible of improvement. The young pigeon, under its protection alone, falls much more frequently into snares than his old companions. The latter, instructed by memory, recognize the objects and circumstances under which they have formerly encountered danger or uneasiness. It is not likely that their ideas on such subjects are very precise; but they certainly can observe the relation between the sight of certain objects, and a well founded fear for their liberty or existence.

If it be true that the old pigeons, better than the young, can avoid snares, and the pursuit of man and animals—if they divine, as it were, the projects of their enemies, and frustrate them by opposing stratagem against stratagem,—their intelligence must have undergone improvement with time, and is therefore susceptible of it.

The curiosity which these birds so obviously evince is a proof that their intellect is not stationary. From this curiosity a variety of light fugacious movements originate in these birds, very observable when they are attentively watched, and some degree of cultivation bestowed upon them. The more they are attended to, the more do they seem capable of ideas and sentiments,—the more their understanding and affec-

tions seem capable of being excited by proportionate causes. There are limits, however, which cannot be passed, resulting from the organization of these birds, and from the rank which nature has assigned them in animal existence. In them the sentiment of self-preservation predominates over every other; it is manifested by various phenomena, according to the ideas with which it is accompanied when excited. Sometimes the pigeon will run the chance of combat with his enemy, of whatever species; he will then exhibit an obstinate courage, a lively resentment, which sometimes even prove fatal to himself. Sometimes these are directed with an evident intelligence. If he conquer, he celebrates his victory, not unlike the cock, by repeated cries.

At other times, the same sentiment, directed by different ideas, inspires the bird to preserve himself from his enemy by flight. Fear then takes possession of him, sometimes so strongly as to deprive him of the use of all his faculties. When this is not the case, he saves himself by a rapid and well directed flight, by plunging among the thick branches of the trees, or by some other stratagem. If he be engaged in combat, it is curious and interesting to observe how obviously the female sympathizes with her companion.

The various wants and desires of the individuals occupying the dove-house, prove constant occasions of quarrel amongst the pigeons themselves. During the seasons of reproduction, of incubation, of bringing up the young, these generally rise to the highest pitch, and the females take as much share in them as the males.

Those for whom the aviary is the most suitable dwelling, seem to feel a want of the society of their consimilars, and even of that of man. A single pigeon, an isolated couple, feel ennui, eat little, and seldom let their voices be heard. If a man comes to visit them, their animation is immediately excited; they will sport around him, attack him, and do every

thing to attract his attention. Under such circumstances they show themselves most susceptible of education, of contracting particular habits, of giving symptoms of intelligence, and of seeking to be caressed.

These birds, as we have said in our observations on the genus, are remarkable for their amorous propensities. They are not, however, the models of constancy and affection, at least in the domestic state, that some writers have represented them to be; on the contrary, though naturally monogamous birds, their infidelities are frequent enough, especially in the males. This goes so far that the male will sometimes introduce a strange female into the nest, and oblige his former companion either to desert it, or endure the company of the intruder. The females will sometimes act similarly with the old males.

Jealousy also prevails among them to an excessive degree, and is the cause of continual altercations, and sometimes of bloody combats.

There is one propensity peculiar to many pigeons, which, it must be confessed, is not very laudable. Many of them, and more particularly males, will seize the moment when a couple have left their nest to enter it and break the eggs, or tear and destroy the young ones. What is worse than this is, that the young are sometimes abandoned by their own parents; but this does not frequently occur: when it does, they are either exposed to die of hunger, or, if they descend into the aviary, to be destroyed by the other pigeons. It will sometimes, however, happen, that one of the latter will take them under its protection, and bring them up as if they were its own.

When a pigeon, having fallen sick, grows excessively weak, and especially if he have the misfortune to be in the middle of the aviary, the others will set upon him, and despatch him without loss of time; even his female companion is found to

join in this atrocious amusement, and *vice versa*. They even continue to molest the body after it is deprived of life.

When the pigeons experience hunger or thirst they are very unquiet, exhibiting their wants by the most expressive demonstrations. They will fly upon any person who enters the dove-house, and endeavour in the most intelligent manner to make him understand their desires. They will seek for food with their bills, in his hand, in his mouth, and all about his person,—provided that he does not frighten them, but yields himself to their perquisitions. This peculiarity shows how these birds may be tamed to the greatest degree.

Pigeons suffer considerably from cold, and when under a certain degree of its influence they are more silent than usual, taking refuge in their nests, or in those parts of the aviary which are sheltered from the wind,—thus losing that desire of motion which seems to animate them so much at all other times. But when the cold is sufficient to pierce to their retreats, and disturb their repose, they are observed to clap their wings forcibly, and rise above the ground by alternate jumps, which they continue for some time. On such occasions, they are also fond of extending themselves in sunshine, or near something warm.

Heat in excess equally incommodes them. They then keep their bill open, and the throat dilates and contracts in a singular manner. In hot weather they are particularly fond of bathing, and even in winter they will plunge into water.

In the different races of the pigeon we may observe characteristic marks in their modes of fighting. Pigeons with a powerful bill march directly towards the enemy, attack him in front, and with the bill only. Those with a short bill also combat with this weapon, but more with the wing, with which they strike reiterated blows. Those with a swelling throat,

being too vulnerable in the crop, prefer to attack or defend with the wings; but their adversaries always prefer to approach them closely and seize them near the bill, or in the bill itself. The small rough-footed pigeons rarely employ either bill or wing, but precipitate themselves on the body of the enemy, and raising him up, make him lose his footing, and push him aside. Very frequently, in the moment in which they pass their head under the body of their adversary, they bite the skin in that part which is denuded of feathers.

There is a humour secreted from the two glands of the coccyx in the pigeons, which varies in its odour in the different races. It is probable that this humour communicates the peculiar odour which we observe in the bodies of the pigeons,—though, doubtless, the cutaneous perspiration comes in for a considerable share in its production. This odour certainly is not the same in the different races. That of the domestic biset, for instance, is agreeable, while that of the Roman pigeon is sometimes fœtid.

The disposition to live in society is not one of the least interesting phenomena to be remarked in these birds. Their jealousies and quarrelsome character cannot overcome it. It is doubtless a primitive characteristic of the species. It is not, however, turned by them to advantage in the way of combat with their common enemies; but it increases and assists that watchfulness which is the means of their preservation: and as they seek their food in common, probably it augments their resources of subsistence.

It may be remarked, that when these birds flock together, some of them act as sentinels or videttes; others are more occupied in seeking out food than in eating, while the rest are engaged in satisfying their appetite. These last are guided on their march by those who seek the food, and both rely for protection on the vigilance of their sentries. The

last take up such positions as may render their services efficient. They usually remain on trees or small eminences of the soil, or hover almost immovable in the air. Thus we have a regular army, with its scouts, guards, and commissariat.

The guards take no nourishment, except when they see every thing undisturbed; and even then they eat in haste. Their rank in the society is derived from age and experience. They are also superior in strength, at least in comparison to the young pigeons. These last are giddy and imprudent—protected by the society, and often corrected by the adults, but freed from all charge, and employed solely in satisfying the wants of their organization.

There are other members of this community to whom the care of the general preservation is also confided. These are placed in the centre of the troop, and when the videttes give the warning signal of approaching danger, it is repeated by them, and thus all the rest are advertised of it.

On this alarm being given, the entire society takes to flight, either into the air or towards the bushes. Sometimes they close their ranks, and make towards another flock of their own species. In this last instance, a combat will sometimes take place, and sometimes not. When one of the troops is more numerous, it is sometimes thus recruited by the numbers of the other.

Chardin says, that in Persia it is a favourite amusement to catch the wild pigeons of the country, by means of tame ones. These are made to fly the live-long day after the wild pigeons. They generally bring the latter back with them to the dove-house; but this stratagem succeeds only with the young ones.

When a combat of the kind above-mentioned takes place between two flocks, if one of them, without continuing it, takes to flight, we may be assured that they do not inhabit

the district, but have made an incursion, pressed by hunger, or some other want. But if in their retreat they continue to fight and defend themselves, we may conclude that they have been habituated to the place, and are driven out, not for want of courage or obstinacy, but by main force and superior strength. They will not abandon their territory but after the most desperate combats, for pigeons, like many other animals, seem to claim a right of property in certain districts from usage and prescription.

Such is the society of the pigeons—such are its bonds of connexion, its internal regimen, and its objects. Every thing is adapted for its permanence and its preservation: and we may easily believe that its wants alone have determined its members to approach the habitations of man, and to submit themselves to a species of servitude. It is only held together by the means which we have described; for these birds, which exhibit so much tenderness for their young as long as the latter cannot fly, soon pass to a very different sort of disposition. They will not only nourish their offspring no longer, but having once engaged them to try their wings, conclude by driving them out of the nest. The young pigeons then follow the flock, and to it alone, for the future, they belong. They have then the lessons of example, and are obliged to yield that obedience which is the irrevocable destiny of the feeble. Nature, whose foresight in the preservation of all species is so remarkable, would not have limited the parental tenderness of these birds to the short period of three weeks, if she had not provided a sure asylum for the young, the weak, the unskilful, and the improvident.

It appears more than probable that the family of the columbæ contains species and races, not only prone to live in society with their fellows, but that feel a sort of attraction towards man, and a pleasure in his neighbourhood,—are susceptible of the wish of engaging his attention, and of con-

ciliating his good will. No doubt the advantages which he offers them, of habitation, of food, and of protection, constitute a powerful motive of attraction to these birds; but it cannot be the sole cause which decides their conduct. Let not man be too presumptuously confident as to the degree of influence which, of himself, he exercises over the various classes of animals. A more powerful and a more skilful hand has prepared the way for his success, if indeed it has not produced it altogether. Were it otherwise, why should this success be comparatively so limited?—and if the human species be indebted for such conquests solely to their own sagacity and intelligence, why do they not extend them much more considerably over the animated tribes of the earth? To speak merely of those birds on which we are now writing, why has man been enabled to avail himself of those races only which are not above mediocrity in size and beauty? Why has he not subjugated the larger and finer species, which inhabit, in a state of independence, so closely to him, in the environs of his rural habitation? The attempt has been repeatedly made, and repeatedly in vain.

The animals in general, and most particularly the pigeons, which have become domestic, have passed to this state, first, in virtue of a special predisposition, and next, through the cares of man. What a change has servitude produced in the social character of the pigeons! Here again we discover the narrow limits beyond which the influence of man over these birds cannot pass. He affords them a lodging, which shelters them against the inclemency of the seasons and the attacks of their enemies. They can have no motive to fear in this respect. Nourishment in sufficient quantity is placed within their reach. It then becomes no longer necessary for them to proceed in flocks, and with a world of precaution, in search of food. Finally, man drives away from his habitation all their enemies. The pigeon learns this by experience, and

avails itself of the proffered security. It can then, for the most part, dispense with the auxiliary vigilance of its companions. The object to be gained by combined association exists no longer; but yet the instinct which impels to it is not destroyed; it exhibits itself more or less in the most domesticated state to which these birds can be brought. The tame pigeons, free, or shut up in an aviary, still continue to present to the observing eye those phenomena of their intelligence and feelings which, in the wild or half-domestic state, concur to the formation or support of societies. Some may be remarked continually acting in the capacity of watchers to the rest, and others that never undertake this employment. Some individuals always clatter their wings in flying; others never make a noise of this kind.

Thus we invariably find, that there are fixed limits assigned to that empire which man is permitted to exercise over the lower animals. Every thing has been provided by nature for the subsistence, the conservation, and the perpetuity of the beings which she has produced, under all possible varieties of condition and circumstance. Her provisions for the existence of certain species sometimes happen to accord with the views of man, and he avails himself of them. But here his empire for the most part ends. It is so far from absolute, that it is evidently permitted, as much with a view to the advantage of those over whom it is exercised, as to himself. If this observation will not entirely apply to all domesticated animals, it will certainly apply to all those which are domesticated merely for the purposes of food.

The varieties of the domestic pigeon are so excessively numerous, and the details of authors concerning them so voluminous, that within our space it is impossible to give any view of them. To do so at any length would require a volume.

The *Turtle Dove*, or pigeon, is a bird of passage, which

arrives in the temperate climates of Europe about the month of May, and in the colder regions about the middle of the same month. It quits us at the end of summer, when the young ones of the existing year are able to fly and sustain the fatigues of the voyage. It then proceeds to warmer countries, to sojourn there until the renewal of the fine season with us.

The turtle is not only spread throughout Europe, but is even found in China; also in Siam, Hindostan, and on the coasts of Africa. It is very plentiful in England, particularly in Kent.

The turtle is fond of wild and retired places. In summer it prefers coolness, and its nest is usually found near some limpid water. This nest is composed of small wood, so loosely arranged that the two white eggs which the bird is hatching may be seen through it from the bottom. The male partakes the incubation.

The *Spotted-necked Turtle*, of which the opposite is a figure from the drawings of General Hardwicke, is a variety of the last. It differs in having almost the whole side of the neck black, instead of a single patch. The feathers are not tipped with white, but have a round white spot near the end. The specimen represented in our plate was taken at Futtehgurh, in India.

The *Collared Turtle (Columba Risoria)* has been imported into Europe from warmer climates. Its native residence is in the depth of the ancient forests of Southern Africa. It is said that it never changes place without uttering a sound resembling a laugh, from which circumstance its specific name of *risoria* is derived.

In Egypt the people are fond of this species, and guard it with especial care. We are not aware, however, that it is, strictly speaking, reduced to a domestic state in that country. Levaillant has met with these birds in the country of the

BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

THE HURRIAL PIGEON.

COLUMBA HARDWICKII.

Mus. Genl. Hardwick.

London. Published. by Whittaker & Cº Ave Maria Lane. August. 1822.

Generic Characters of Birds.

ORDER GRALLÆ.

1. Casuarius.
2. Struthio.
3. Hæmatopus.
4. Otis.
5. Arenaria, Bech.
6. Cancroma.
7. Grus.
8. Recurvirostra.
9. Ibis.
10. Phœnicopterus.
11. Parra.

London Published by Whittaker & Co. Ave Maria Lane. 1829.

Great Namaquas. They are there of a smaller size than those we see in Europe, but their voice is similar, and they build their nests in trees, like the last noticed species. The male exhibits great tenderness for the female, remaining always near her, especially during the night, and testifying his affection by the peculiar sounds we have mentioned. He also sometimes utters a plaintive cry, which is far from disagreeable.

We give a figure of the *Hurrial Pigeon*, also from the drawings of General Hardwicke. The front is greenish-ash-colour, inclining to purple; upper neck, olive-green; lower, chin, and breast, yellowish; back, rump, and upper tail-coverts, cinereous-green; yellowish-ash beneath, &c. The specimen was shot at Cawnpore in March, 1798, and in it the bill and claws were white, and the tail dove-colour.

The species of the pigeons are so excessively numerous that it would be utterly inconsistent with our limits to dwell any farther on them. Indeed we could give little respecting what remain, but specific descriptions, which would be superfluous, and notices of common habits, which, for the most part, would be only repetitionary of what has preceded, and consequently tedious and disagreeable. We shall content ourselves with concluding this supplement on the gallinæ with a brief notice of, the first species in the division VINAGO.

This is the *Wallia Pigeon*, (*Columba Abyssinica*). It has been met with by Levaillant in Southern Africa, who seemed to consider it as a new bird. It was, however, discovered before his time in Abyssinia, by our meritorious and enterprising, but much calumniated countryman, Bruce, whose services in the cause of science are scarcely yet appreciated to the full extent of their deserving. He informs us, that these pigeons inhabit the lower regions of Abyssinia, where, perched upon the highest trees, they remain motion-

less during the greatest heat of the day. On the approach of the rainy season they quit Abyssinia, and migrate to the southern parts of Africa. Mr. Bruce observes, that these birds fly in great flocks, and to a prodigious height. Their flesh is an exquisite meat, though the Abyssinians do not eat it, but hold it in abomination.

Levaillant informs us, that the wallia constructs its nest in the holes of trees, frequents woods habitually, and lives in an isolated state, in couples, male and female, and that the latter lays four eggs, of a fawn-coloured white, or isabella.

We may conclude, from a comparison of the descriptions of travellers, that this bird makes its nest during the rainy season, in Southern Africa, where it then lives isolated and occupied with the care of its offspring; that it migrates northward when the young are in a state to fly; and that in its new abode the species continues to live in numerous bands. It seems probable that it also exists in Madagascar. Fruits constitute the aliment of this species, as they do of all others of the same family.

THE FIFTH ORDER OF BIRDS, WADERS,

GRALLÆ, Lin. ECHASSIERS, Cuv.

ARE named from their habits, and from the conformation from which their habits result. They may be known by the nudity of the lower part of their legs, and in general by the height of their tarsi, circumstances which enable them to walk to a certain depth in the water without wetting their feathers, and thus to fish by means of their neck and bill, which are in general proportioned to the length of the legs. Those which have a strong bill, feed on fish and reptiles; those whose bill is weak on worms, and insects. A very small number of them feed partially on grains and herbs, and these alone live at a distance from water. The exterior toe is in general united at its base to the middle toe, by means of a short membrane. In some, there are two similar membranes; in others they are entirely wanting, and the toes are quite separate; it sometimes happens, though rarely, that they are bordered all along, or palmated, to the end. The thumb is wanting in many of the genera. All these conditions influence their mode of life, more or less aquatic. Almost all these birds, if we except the ostriches and the cassowary, have long wings, and are good flyers; they stretch their legs

behind in flight, contrary to others, which fold them under the belly.

We establish in this order five principal families, and some isolated genera.

Nevertheless the family of

Brevipennes,

although similar, in general, to the other waders, differ from them considerably in one point, namely, the shortness of their wings, which deprives them of the faculty of flight; in their bill, moreover, and the nature of their food, they approach the characters of the gallinaceous birds.

It appears as if the muscular force of nature would be insufficient to move wings so extended as the bulk of these birds would have required to sustain them in the air. Their sternum is a simple buckler, and is destitute of that ridge observable in other birds. The pectoral muscles are very slender, but their posterior extremity has all the strength of which the wings are deprived; the muscles of the thighs, and especially of the legs, are enormously thick.

None of them have a thumb; the number of phalanges is as follows, commencing at the internal toe: the ostrich, four and five; the American ostrich, or nandou, and cassowary, three, four, and five; returning to the usual number in birds. Two genera of them are made,

The OSTRICHES. STRUTHIO. Lin.

Whose wings, covered with loose and flexible feathers, are nevertheless long enough for the purpose of accelerating their running. Every one knows the elegance of the bunch formed by these plumes, with slender stems, and the barbs, although furnished with beardlet, not at all tied together, as is commonly the case in most birds. The bill of the ostrich is depressed horizontally, of moderate length, blunt at the end; their tongue is short, and crescent-shaped at the end; the eye is large, and the lid furnished with eyelashes; their legs and tarsi are very elevated. They have an enormous crop, with a considerable vesicle between the crop and the gizzard; the intestines are voluminous, the cœca long, and a vast receptacle, in which the urine accumulates as in a bladder; hence they are the only birds which urine; the genitals are very large, and are frequently shown externally.

We should consult on the genito-urinary organs of birds, and especially on those of the ostrich, the Mémoire of M. Geoffroy St. Hilaire, Mem. du Mus. t. xv.

Only two species are known, of which as many genera might be formed.

The Black Ostrich. Lath. *Struthio Camelus.* Lin. Enl. 457 See the excellent figure drawn by Maré-

chal, in the Ménagerie of the Museum of M. M. Lacépède and Cuvier, copied in Vieill. Gal. 223.

The feet of which have only two toes, the external one, shorter by a half than the other, being without claw. This bird, which is famous from the most remote antiquity, and is very numerous in the sandy deserts of Arabia, and the whole of Africa, attains from six to eight feet in height; they associate in large bodies; lay eggs of nearly three pounds in weight, which (in very hot climates) they merely expose to the heat of the sun in the sand, but on which they sit, out of the tropics, and cherish and defend every where with courage.

The ostriches live on herbs and grain; and their taste is so obtuse, that they swallow indifferently flint stones, bits of iron, brass, &c. When pursued they fling stones behind them with great force: no animal can catch them running.

The American Emeu. Lath. Hist. t. 134. *Nandou, Churi, &c. Struthio Rhea.* Lin. Hammer. Ann. Mus. XII. 39. Vieill. Galer. 224.

Brisson and Buffon have, improperly from Barrère, applied the name *Touyou*, or rather *Touiouiou*, which belongs to the *Jabiru;* it is the genus *Rhea* of Brisson. The Portuguese of Brazil have transferred to it the name of Emeu, which belongs properly to the cassowary.

Nearly half less than the last; less furnished

as to its feathers; of a uniform grey; is distinguished especially by its three toes, all furnished with claws; the plumage is greyish, browner on the back; a blackish line passes over the nape of the male. They are not less abundant in the southern parts of South America, than the ostrich in Africa. Their feathers are used only for brooms, When taken young, they may be tamed easily. It is said, that several females lay in the same nest, or rather in the same hole; the eggs are yellowish, and are sat on by the male. These birds are eaten, but only when young.

The Cassowary. Casuarius, Briss.

Have the wings still shorter than the ostrich's, and utterly useless in running. Their feet have three toes, all furnished with nails; the barbs of their feathers are so little supplied with beardlets, that at a distance they look like hair, or a pendant mane.

Of these also two species are known, which may in like manner be divided into separate genera.

The *Galeated Cassowary*, Lath. H. 137, *Struthio Casuarius*, Lin. Enl. 313; and better, Frisch. 105. Marechal has also given a very good figure of this species in the Menagerie du Mus., and M. Vieillot has copied it in his Gal. pl. 225.

The bill is compressed laterally; and the head is surmounted with a bony prominence, covered with a

corneous substance. The skin of the head and of the top of the neck is naked, tinted with sky-blue and flame colour, with pendant caruncles, similar to those of the turkey. The wings have certain stiff stems, without barbs, which serve as weapons in fighting; the claw of the internal toe is much the strongest. This is the largest bird in nature after the ostrich, from which it differs considerably in the anatomy, for in this the intestines are short, and the cœca small. Nor is there the intermediate stomach between the crop and gizzard, and the cloaca is not larger in proportion than in other birds. The cassowary lives on fruits and eggs, but not on grain; lays green eggs, few in number, which are abandoned, as in the case of the ostrich, to natural heat. They are taken in several of the islands of the Indian Archipelago.

Cassuwaris, the name of this bird in Malay, according to Clusius. *Eme* or *Emeu*, is the name peculiar to Banda.*

New Holland Cassowary, Lath., *Casuarius Novæ Hollandiæ*, Lath. Voy. de Peron. Atl. part I. pl. 36, Vieill. Gal. 226.†

With the bill depressed, and void of the helmet on

* The *Casuarius Emeu*, Lath. and Temm. See Miller Illust. t. 14. Albin. ij. t. 60, and Anatomy Grew. Mus. t. 27, and Pitsfield Mem. t. at p. 240. The egg green, *Klein Ov. t.* 2, rarely white, *Swam. Mus.* p. 25. Grunt like a hog; confined to the torrid zone.

† M. Vieillot makes his genus EMOU, or DROMAIUS, of this species.

the head, round the ear only is naked; the plumage is brown, thicker, and the feathers more bearded than in the last; there are, moreover, neither caruncles nor alar spines; the claws are nearly equal. The flesh is like beef. This bird runs faster than the fleetest greyhound. The young are barred with brown and white.

N.B. I cannot insert herein species so little known, or even little authenticated, as those which compose the genus DIDUS of Lin.

The first of these, *Hooded Dodo*, Lath. (*Didus Ineptus*,) is known only by a description made by the earliest Dutch circumnavigators, and preserved by Clusius, Exot. p. 99, and by an oil painting of the same period, copied by Edw. pl. 294; for the description of Herbert is puerile, and all the others are copied from Clusius and Edwards. It seems that the entire species has disappeared, and nothing of it is now preserved but a foot, which is in the British Museum, (*Sh. Nat. Mis. pl.* 143,) and a head in a bad state in the Ashmolean Museum at Oxford, (*id. ib.* pl. 166.) The bill is not without some similitude to that of the penguins, and the foot would resemble that of the aptenodytes, if it were palmated.

The second species, the *Solitary Dodo*, Lath. (*Didus Solitarius*), rests only on the testimony of Leguat. Voy. I. pl. 98, who has disfigured the best known animals, such as the hippopotamus and the lamantin.

The third, *Nazarene Dodo*. Lath. (*Didus Naza-*

rinus), is known only through François Cauche, who considers it to be the same as the hooded dodo, and gives it nevertheless but three toes, while all authors speak of the hooded dodo as having four.

No one has seen a specimen of these birds since the above-named travellers.

Of all birds, that which appears to have the wings most reduced to a mere vestige is the APTERYX, figured by Dr. Shaw, Nat. Mis. 1056 and 1057. Its general form is that of an aptenodytes, its size that of a goose. The feet would also be those of *aptenodytes*, but they are said not to be palmated. The bill is extremely elongated, slender, marked on each side with a longitudinal furrow, and furnished with a membrane at the base. The wing is reduced to a little stump, terminated with a hook. It inhabits New Zealand.

The Family of PRESSIROSTRES

Includes certain genera with elevated legs, without a thumb, or at least with the thumb too short to touch the ground. The bill is moderate, but strong enough to penetrate the ground for worms; hence the species which have it the weakest frequent meadows and newly cultivated lands, in search of this sort of food. Those, on the other hand, which have a stronger bill, feed on grains, herbs, &c.

The BUSTARDS. OTIS, Lin.

Have, together with the heavy appearance of the

gallinaceous birds, the neck and legs longish, the bill moderate, the upper mandible slightly arched and vaulted, which, together with the slight webs between the toes, assimilates them to that order; but the nakedness of the bottom of their legs, their whole anatomy, and even the taste of their flesh agree in connecting them with the grallæ; and as they are without a thumb, their smallest species is nearly approximated to the plovers. Their tarsus is reticulated; the wings are short; they fly but little, using their wings more commonly, like the ostrich, to assist them in running. They feed on grains, herbs, worms, and insects.

The *Great Bustard*, Lath. *Otis Tarda*, Lin. Enl. 245,

Has the plumage on the back of a bright yellow, traversed by a great number of black bars, the rest is greyish. The male, which is the largest bird in Europe, has the wing-feathers elongated, forming on each side a sort of large mustachios. This species, which is one of our best game, frequents open countries, and builds its nest in the corn on the ground.

Little Bustard. *Otis Tetrax*, Lin. Enl. 25 and 10,

Is more than one half less than the last, and is much less extensively spread. It is brown, dotted with

black above, whitish underneath. The male has a black neck, with two white collars.

Most of the foreign species have the bill more slender than ours. Among these may be remarked

The *Houbara*, or *Ruffed Bustard*, Lath. *Otis Houbara*, Gm. Desfontaine's Acad. des Sci. 1787, pl. 10, Vieill. Gal. pl. 227.

From Africa and Arabia; so named on account of the ruff of elongated feathers which ornament the sides of the neck.

Size of a capon, but longer. Light dun, with small brown spots; head with a white pendant crest; neck-feathers, whitish, black streaked, erectile.

The *Rhoda Bustard*. Lath. *Otis Rhoda*. Gmel. is probably the young or female. The *Undulated Trumpeter*. Lath. *Psophia Undulata*. from Jacq. Voy. t. 9. is certainly the young male or female of this species with a hind toe added by the artist. See Shaw Trav. t. at p. 252. Lever. Mus. t. 50. En. Meth. t. 182. f. 3.

I leave among the bustards all the species of Latham, such as:

White-eared Bustard. Lath. *Ot. Afra*. Lath. Syn. II. pl. 79. Hist. t. 134. cop. Gm. t. 5. f. 1.

Brown, undulated with blackish; crown, brown, black barred; head, neck, and beneath, black; ears, whitish; leg, yellow.

The *Otis Afra* of Linnæus, and the *Knor Cock* of the Cape, see *Kolbet*, t, 7, f. 2, and Gm. t. 266.

Indian Bustard. Lath. *Ot. Bengalensis.* Lath. Hist. t. 250. cop. En. Meth. t. 5. f. 3.

Black; above, fulvous-brown; back, black spotted; tail, black banded; wing-coverts, white. Bengal, called *Charge.*

But I withdraw from Latham's species—

Thick-kneed Bustard, which begins the following genus, on account of its compressed bill, swelled at the end.

Nubian Bustard. Otis Nuba. Rupp. pl. 1.

Eyebrows and throat, black; neck, bluish-ash; collar, reddish; body, above, bay, with scattered mult-angular black streaks; beneath, white; feet, yellow. North Africa. Length, twenty-seven inches; tarsus, four inches.

African Bustard. Lath. H. *Ot. Denhami.* Children.

Head, whitish; crown and band from angle of mouth to nape, black; neck, pale-buff; back, vermiculated white and dark-brown; beneath, white; wing, varied black and white; tail and vent, black and white banded. Central Africa. Mus. Brit. Mr. Salt.

Collared Bustard. Ot. Torquata. Cuv.

A new species from the Cape; which has not been described.

Arabian Bustard. Lath. *Ot. Arabs.* Lin. Edw. t. 12. cop. Enc. Meth. t. 5. f. 2. Ruppel. Atlas. t.

Reddish, blackish streaked; beneath, white; ears,

erect, crestlike. The *Lohong* of Mocha. Arabia Felix.

The *Luconian Peacock* of Sonnerat, t. 49, is perhaps a variety.

Passarage Bustard. Lath. *Otis Aurita.* Lath. Penn. Hind. ij. at p. 271.

Black; body above, brown; ears, with four or five long bristles, feathered at the top; ear and wing spots, white. India. Length, eighteen inches. The *Worail* of India, and the *Flercher* of the English in India.

The Abyssinian Bustard. Lath. H. *Ot. Abyssinica.* Gray.

Marbled like *Ot. Tarda*, but beneath with black cross lines; crest, long, black; neck, greyish-white, black lined; tail, white, brown banded, end, mottled. Length, thirty-two inches. Abyssinia. Mr. Salt.

Blackheaded Bustard. Lath. H. *Otis Atriceps.* Gray.

Greyish-rufous, with fine black cross lines; feathers, rufous edged; head, nape, and throat, black; breast, cream-colour; quills, black; tail, dotted and banded; legs, black. Length, fifteen inches. India.

Blue-necked Bustard. Lath. H. *Otis Barrowii.* Gray.

Ferrugineous, white, and brown, dotted and lined; crown, chin, and back of neck, black; nape, blue; cheeks, rufous; throat and breast, pale-blue; beneath, white; neck, ferrugineous-brown; secondaries and tail, more spotted; quills, black; legs, yellow. Perhaps

the *Wild Peacock* of Barrow's Trav. 139. Cape of Good Hope.

New olland Bustard. Lath. H. n. 3. *Ot. Australis.* Gray.

Back and tail, brown-grey, white speckled; crown, black; neck, dun colour, black speckled; wing-coverts, white, black and bluish spotted; belly, white; five outer quills, brown; rest, grey, spotted and tipped with white; tail, white tipped. Length, three feet; tarsus, seven inches. New South Wales. Gen. Davis.

White-chinned Bustard. Lath. *Otis Indica.* Shaw. Miller. Cy. Ph. t. 33.

Brown, black waved; beneath, whitish-brown; throat, white; crown and band on side of head, black. India.

Cape Bustard. Otis Caffra. Lich. 1793.

Above, ash, black waved, streaked; eyebrows, chin, nape, band on sides of neck, and belly, white; crown, quills, and tail, white, with three black bands. Male, throat, slate-coloured: female, band on crown and throat, black waved. Cape. Length, thirty-eight, tarsi, six inches.

See also *Marbled Bustard.* Lath. Hist. viii. 362.

The Plovers. Charadrius. Lin.*

are also without the thumb, and have a moderate bill, which is compressed and swollen at the end.

* *Charadrius,* the Greek name of a nocturnal and aquatic bird, derived from χαραδρα. Gaza translates it *Hiaticula.*

They may be subdivided into the two following subgenera:

OEDICNEMUS. Tem.*

These have the end of the bill swollen as well above as below, and the nasal fossæ extending only half its length. They are the largest species, which frequent in preference, dry and stony ground, feeding on snails, insects, &c.; they have some similarity to the small species of bustards; their feet are reticulated, and there is a short membrane in the interval of their three toes.

The Common Oedicnemus, or Thick-kneed Bustard. Lath. *Charadrius Oedicnemus.* Lin. *Oedic. Crepitans.* Tem.—Enl. 919. Frisch. 215. Naum. first edit. 9. f. 13.

As large as a woodcock; yellowish-grey, with a brownish cast in the middle of each feather; the belly is white, and there is a brownish stripe under the eye.

Spotted Thick-knees. Oedic. Maculosus. Cuv. Col. 292.

Like former, without any wing-band; wing-coverts and secondaries, ferrugineous, black and white banded; chest-bands, broader; tarsi, longer; and bill and toes, shorter. Africa, from Senegal to the Cape; the *O. Capensis*, of Lichtenstein. Length,

* A name invented by Bolon, for the *Thick-kneed Bustard.*

eighteen, and tarsi, four inches; the *O. Grallarius*, of Temm.

Long-legged Plover, or Thick-knees. Oedic. Longipes. Geoff. Vieill. Gal. 228. Tem. Col. 386.

Size of a fowl; dark-ash; black streaked; wing-band, white, black streaked; throat and belly, white. Length, twenty, tarsi, six inches; bill, small. New Holland. *Ch. Grallarius.* Lath.

Great-billed Bustard. Lath. H. *Oedic. Magnirostris.* Geoff. Col. 387, may, by the form of its bill, commence a particular series.

Bill, longer than the head, base, broad, pale-ash; chin, sides of head, belly, and tail, white; eyebrows, ears, whiskers, quills, and tip of tail, black; wing-coverts, darker, pale edged. Length, nineteen inches. Molucca, Java, and India; first discovered by Gen. Hardwicke, and described by Latham.

Oedic. Recurvirostris. Cuv.

Not described.

To which would be attached a neighbouring species, with the upper bill rather bent.

Char. Crassirostris. Spix. 94.

Crown, nape, lower part of neck, back, wings, and tail, dusky; face, upper part of neck, breast, and beneath, white; legs, slender, red; bill, thick. A true *Plover.*

The PLOVERS, properly so called, CHARADRIUS,

Whose bill is swelled only above, has two-thirds of its length occupied on each side by the nasal fossæ,

which, therefore, weakens it; they live in numerous bodies, frequent humid swamps, and strike the ground with their feet to induce the worms, on which they feed, to move.

The species of our country are migratory only in autumn and spring; some of them continue near the sea till the hard frosts commence. Their flesh is excellent; they, together with several foreign species, form a tribe with reticulated legs, the most remarkable of which are—

The Golden Plover. Char. Pluvialis. Lin. Enl. 904. Frisch. 216. Naum. 1. c. 10. f. 14. Wils. Amer. vij. 59, 5.

Blackish; dotted with yellow on the edges of the feathers; belly, white. It is the commonest species, and is found throughout the world.

In the north, there is one, which differs from this only in having a black throat.

The Alwargrim Plover. Lath. *Char. Apricarius.* Edw. 140. Naum. II. f. 15. Wilson's Amer. vij. 57, 4. Some say this is the young of the last.

Dotterel. Char. Morinellus. Lin. Enl. 832. Naum. 12. f, 16, 17.

Grey or blackish, with the feathers edged with fulvous-grey; a black stripe on the eye; chest and upper part of belly, bright-red; vent, white.

Ringed Plover. Lath. *Char. Hiaticula.* Lin. Enl. 920. Frisch. 214. Brit. Zool. Pl. P. Wils. Amer. v. 37, 2.

Grey above; white underneath; with a black collar at the bottom of the neck, very large in front; the head, varied black and white; the bill, yellow and black. There are found in the same country two or three races, or species, different in size, and in the distribution of the colours of the head.

Curonian Plover. Lath. *Ch. Minor.* Meyer. Enl. 9. 21. Wilson. vij. 59, 3. Naum. 15. f. 19. or *Ch. Curonicus.* Lath. with the bill black.

White; bill, all black; nape, band, and frontal, lunule black; crown, ash; back, wings, and tail, ash. Europe. The *Ch. Fluviatilis.* Bechst. *Ch. Erythropus,* and *Ch. Philippinus.* Lath. from Sonn. Voy. t. 46.

Kentish Plover. Lath. *Ch. Cantianus.* Lath. or *Ch. Albifrons.* Meyer. of which *Ch. Ægyptius* may be the female; the collar is incomplete.

A similar distribution of colours is found in many foreign species.

Noisy Plover. Lath. *Ch. Vociferus.* Enl. 286. Young. Wils. vij. 59, 6. adult.

Crest-band, neck, forehead, and cheeks, black; tail, yellow, black banded; feet, yellow. America. Catesby, t. 71. the young is *Ch. Torquatus,* and *Ch. Jamaicensis.* Lath.

Indian Plover. Lath. *Ch. Indicus.* Lath.

Brown; forehead, eyebrows, and occiput, brown-white; throat, whitish; belly, white; two side tail-feathers, white, brown spotted; bill, base, yellowish. Africa, especially the Cape. The *Ch. Bitorquatus*, Lichst. *Ch. Tricollaris.* Vieill.

Three-banded Plover. Ch. Trifasciatus. Lichst.

Back, grey; face, throat, chest, and three lateral quills, white; band between the eyes and chest and crop band, black; top, head, and nape, rufous. Inhabits Brazil.

Char. Azarai. Tem. Col. 18. t. 4.

Ash, varied with rufous; forehead, throat, chest, belly, and three lateral tail-feathers, white; crown spot, face, and band between crop and chest, black; occipital band and ears, reddish. Length, eight inches. The *Ch. Collaris.* Vieill. from Azara, n. 392.

Char. Melanops. Vieill. Gal. 235. or *Ch. Nigrifrons.* Cuv. Col. 47.

Reddish-brown, white streaked; wing-coverts, white edges; beneath, white; forehead, streak on side of neck, throat-collar, and quills, black. New Holland.

Wilson's Plover. Ord. *Ch. Wilsonii. Ord.* Wils. Amer. ix. t. 73. f. 5.

Olive-ash; front, collar, and beneath, white; frontlet and broad ring round base of neck, black; bill, black; feet, reddish. North America. Wagler considers *Ch. Magnirostris*, Spix. Braz. as the young of this bird.

Asiatic Plover, Lath. *Ch. Asiaticus.* Pallas. Reise. *Ch. Jugularis.* Wagler, n. 39.

Grey-brown; forehead, eyebrows, throat, and abdomen, white; chest, ferrugineous, with black band beneath. Like *Ch. Morinellus*, but tarsi longer. Tartary and Java. According to Lichstenstein, the *C. Tartaricus* and *C. Caspius.* Pallas.

Mongolian Plover. Lath. *Ch. Mongolius.* Pallas. *Ch. Gularis.* Wagler.

Ash-brown; forehead and beneath, white; crop and chest, ferrugineous; throat, with a black lunule. Mongolia. Size of Dotterel.

Ch. Marmoratus. Temm. Azara n. 390, and young, *Ch. Pectoralis.* Vieill. from Azara, n. 389.

Blackish-brown; lower wing-coverts, pure-ash; tail-feathers, all brown-ash, with obscure narrow band; quills, sooty; base, white; forehead and eye-streak, side of neck, and chest, white; face, throat, chest, and belly, black.

Gregarious Plover. Lath. *Ch. Keptuschka.* Lepech. Female, *T. Fasciata.* Gmel. Trav. t. 26, and young, *Ch. Gregarius.* Pallas.

Ash; beneath, white; chest, lunule black, behind, red; tail, white, black banded. North of Europe and Siberia. And *Vanellus* of Vieillot.

Ch. Pectoralis. Cuv. *C. Tricolor.* Vieil.

Grey; head, neck, chest, and wing-feathers, black; latter, white-edged; tail, black and white; throat,

chest and beneath, white; eye-streak, white; bill, yellow; tarsi, red. Southern Ocean.

Ch. Lugubris. Lesson.

Bill, black; forehead and cheeks, grey; neck and back, slate; chest with a broad black band; middle wing-coverts, white; quills, black; tail, half-black, half-white; beneath, white.

Charad. Larvatus. Tem.

Grey; crown, lores, chest-band, quills, and tail, black; forehead, eye-spot, throat, and beneath, white; occiput and back of neck, red. Brazils.

Half-webbed Plover. (*Charad. Tringa. Hiatula.*) Wilson, Orn. vii. t. 59, f. 3. *Ch. Semipalmatus.* Bonap. A. Orn. t. Caup. Isis. t. 14. f.

Toes, all half-webbed, brownish-ash; front-collar and beneath, white; frontlet, and broad ring round neck, black; bill, orange, black tipt. North America.

Piping Plover. Ch. Hiatula. Wilson, A. Orn. vii. t. 37, f. 3. *Ch. Melodus.* Ord. *Ch. Okenii.* Wagler.

Whitish-ash; front-collar and beneath, white; a narrow black ring round base of neck; bill, orange, black tipt. North America.

Dwarf Plover, Lath. H. *Ch. Pusillus.* Horsf.

Cinereous-brown; beneath, white; chest-band, cinereous-brown; middle tail-feathers, cinereous-brown, with a darker apical band. Java.

Red-necked Plover. Lath. *Ch. Rubricollis.* Lath.

Ash; body beneath, white; head and neck, black;

sides of neck with a quadrate chestnut-red spot. Van Diemen's Land.

Ch. Curbepedesmos. Wagler.

Ash; feathers, pale-edged; face, chin, and beneath, white; chest-band, broad, ferrugineous; lores and sides of head, black; quills, black, with white shafts; side tail-feathers, white.

Ch. Geoffroyi. Wagler, n. 19.

Pale-Isabella, bluish, denuded; wings, ash; chin, scapes of quills, side tail-feathers, and body beneath, white; chest-band, pale-Isabella; above, black-edged; nape-band, black. Inhabits Java.

To these may be added, some species nearly allied to the former, although they are without the collar.

Ch. Pecuarius. Tem. Col. 183. ♂

Ash-brown; beneath, white; forehead, eyebrows, and lores, white; band between the eyes, face, and streak on side of neck, black; chest, isabella; outermost tail-feathers, white. Length, six inches. *C. Pastor.* Lesson, and *C. Varius.* Vieill. Young, *C. Varius.* Vieill.

Char. Ruficapillus. Tem. Col. 42.

Ash; feathers, reddish-edged; face and beneath, white; lores and quills, black; nape and back of neck, reddish, blackish edged; side tail-feathers and band of wings, white. Oceanic Islands. The *Ch. Marginatus.* Geoff. Mss. not Vieill. New Holland.

Ch. Monachus. Tem.

Ashy-white; quills, nuchal, and wing-band, and body

beneath, white; head and back of neck, reddish-black; tail, black and white. The *Ch. Cucullatus*, Vieill. South Seas.

Grisled Plover. Lath. *Ch. Griseus.* Lath.

Grey-brown; beneath, white; crown, black-spotted; wings, white spotted; quills, black; tail, dusky. New Holland.

Ch. Marginatus. Vieill. not Geoff. *Ch. Leucopolius*, Wagler, n. 28.

Occiput and back, ash; feathers, pale-edged; quills, black; forehead, nape, side of head, neck, and beneath, white; tail, white spotted: outermost feathers, white. Cape of Good Hope.

Dusky Plover. Lath. *Ch. Obscurus.* Forster. t. 122.

Blackish; beneath, ochraceous; forehead and throat, whitish; neck, duller, pale streaked; bill, black. New Zealand.

Ch. Fulvus. B. Lath. *Ch. Xanthocheilus.* Wagler, n. 36.

Brown, fulvous edged; beneath, white; chest, dusky; tail, brown, each feather with a pale spot.

Fulvous Plover. Lath. Ch. Fulvus. Forster, t. 124.

Black, fulvous-edged; beneath, whitish; chest, fulvous, black spotted; wing-band, white. Otaheite. *Ch. Taitensis.* Lesson.

Red-chested Plover. Ch. Sanguineus. Lesson.

Bill, short, black; forehead, white; top of head, face, and eyestreak, grey; throat spot, white; chest and

lower part of neck, varied red and grey; back, rufous-grey; beneath, white; tail and quills, brown.

Ch. Leschenaultii. Lesson. *Ch. Griseus.* Mus. Par. not Lath.

Forehead and ears, white; back, cheeks, and wing-coverts, fulvous-grey; chest and throat, whitish; lower part of chest, red; belly, white; quill and tail, brown and white. Pondicherry, called *Oulan.*

Charad. Spixii. Wagler. n. 7.

Ash; larger wing-coverts, tail, and body beneath, white; tail with black subapical band; neck and chest, slate, with black spot beneath; chin, forehead, and eye-brows, white.

White-bellied Plover. Lath. *Ch. Leucogaster.* Lath.

Brown; body beneath, forehead, band above and below the eyes, base of primaries, and three outer-tail-feathers, white.

Sombre Plover. Charad. Fuscus. Mus. Par. *Ch. Nebulosus.* Lesson.

Forehead, cheek, neck, and chest, red-grey; head, grey; back, wings, and tail, brown; belly, vent, and sides of tail, white; thighs, red spotted; bill, black. Brazils.

Many of the foreign Plovers have the legs shielded; they form a small division; most of the species of which have spurs in the wings, or fleshy appendages to the head; some of them unite both these characters.

Species with the feet shielded and wings not armed.

Wreathed Plover. Lath. *Char. Coronatus.* Enl. 800.

Brown; head above, black; occipital ring, belly, wing-band, and tail, white; quills and tip of tail, black. Cape of Good Hope. *Ch. Alexandrinus.* v. Lath. and *Ch. Atricapillus,* Penn.

Black-headed Plover. Lath. *Char. Melanocephalus.* Enl. 918. Savigny, Egypt Ois. pl. 6, f. 4. of which M. Vieillot makes his genus PLUVIANUS, Gal. pl. 23, which has the bill rather larger than the others.

Blue-grey; head, back of neck, and back, black; eye-brows, front of neck, and chest, pale-red. Senegal, Egypt. The *Charad. Ægyptius.* Haselq. *Ch. Alexandrias,* B. Gmel. *Ch. Africanus.* Lath. *Pluvianus Chlorocephalus.* Vieill. the adult. *Pluvianus Melanocephalus.* Vieill. the young.

Species armed as above mentioned—

Crested Spur-winged Plover. Char. Spinosus. Enl. 801.

Quills, chest, and feet, black; occiput, crested; tail, half-white. Egypt. The *Ch. Cristatus.* Edw. 47. see Savig. Ois. Egypt, t. 6. f. 3. according to Lichenstein.

Spur-winged Plover. Lath. *Char. Cayanus.* Enl. 833.

Ash; top of head and back of neck, scapulars, quills,

and end of tail, black; throat and beneath, white. The *Ch. Spinosus*, Gmel. Azara. n. 391. Paraguay and Brazils; the *Ch. Stolatus*, Wagler.

Charad. Ventralis. Wagler. Brisson, v. t. 7. f. 2.

Head, back of neck, and chest-band, black: occipital-band, neck, ring and front of belly, and base of tail, white. India. See *Charad. Duvaucelli.* Lesson.

New Zealand Plover. Lath. *Char. Novæ Zealandiæ.* Lath. *Ch. Novæ Zelandiæ.* Gmel. *Ch. Dudora.* Forster. n. 121. cop. Lath. Syn. t. 83.

Ash-green; face and nape, black; annular head-band, band on wing, and body, beneath, white. New Zealand.

Rusty-crowned Plover. Portlock, Voy. t. at p. 36. *Ch. Falklandicus.* Lath. *Ch. Annuligerus.* Wagler.

Clouded-brown; forehead, throat, and belly, white: annular head-band, ferrugineous; crown-band and chest, black. Falkland Islands. Length, seven and a half inches.

See *Red-headed Plover. Char. Pyrocephalus.* Lesson. Voy. Coquille.

Species with fleshy appendages—

Hooded Plover. Lath. *Char. Pileatus.* Enl. 834.

Crested; body above, rufous-grey; beneath, white; crown, throat, quills, and tip of tail, black. Senegal.

Char. Bilobus. Enl. 880.

Red-grey; eyebrows, belly, and wing-band, white;

crown, quills, and tail-band, black; forehead, carunculated. Malabar.

Also are described by Latham,—*Chestnut-billed Plover*. Lath. H. 324. n. 10. *Black-throated Plover*. Lath. H. 330. n. 15. *New Holland Ringed Plover*. Lath. H. 332. n. 19. New Holland. *Ticksee Plover*. Lath. H. 343. n. 36. India.

The Lapwings. Vanellus. Bech. Tringa.* Lin.

Have the same bill as the Plovers, and are distinguishable from them only by having a thumb, which, however, is so small that it does not touch the ground.

The first tribe of them,

Squatarola. Cuv.

Has the thumb scarcely perceptible; it is distinguished by the bill being swollen underneath, and by the nasal fossæ, which are short, as in Oedicnemus; their feet are reticulated. These indigenous species have the entire tail striped with white and blackish. They form, as it is said, only one species, which has been multiplied by authors, from the variations of its plumage. It associates with the plovers.

* *Tringa*, or rather *Trynga*, is the Greek name of a bird, the size of a thrush, which lives on the edge of water, and moves its tail. *Arist.*—Linnæus first applied this name; but he placed in his genus *Tringa*, several other birds than the Vanelli, especially the *Knots*.

Tringa Squatarola. Enl. 854.

Greyish; above, whitish, with greyish spots underneath in the young before moulting.

Tringa Varia. Enl. 923.

White, spotted with greyish; the mantle blackish, dotted with white; includes both sexes in their winter plumage.

The *Sandpiper. Tringa Helvetica.* Enl. 858. Naum. Sec. Edit. 62. f. 117.

Spotted with white, and blackish above; beneath, from the throat to the thighs, black; is the male in the breeding season.

The LAPWINGS, properly so called, VANELLUS. Cuv.

Have the thumb a little larger than the last; the tarsi shielded, at least in part, and the nasal fossæ passing two-thirds down the bill. Their industry in catching worms is equal to that of the plovers.

The European species—

Tringa Vanellus. Lin. Enl. 240. Frisch. 213. Naum. 14. f. 18.

Is a pretty bird, of the size of a pigeon, of a metallic black, with a long delicate crest. It arrives in spring, lives in the open country and in meadows, builds there, and departs in autumn. Its eggs are considered delicious.

The *Vanellus Cristatus* of Meyer; the young is

Charad. Gavia. Licht. and *Vanellus Ægyptius,* Hempr.

Van. Cinctus.

Less. and Garn. Voy. du Duperey, pl. 43.

Head, back, wings, rump, and tail, brown-ash and brownish; throat, cheeks, and forehead, grey; above the eyes a white band; chest, ochreous, separated from the white belly by a black band. Malouine Island. The *Tringa Urvilii* of Garnet. The *Van. Flavipes.* Savigny, Egypt. Ois. pl. 6. f. 3. The *Charad. Spinosus* of Lin. according to Lischt.

Ch. Ceucurus, Lichst. Savig. Ois. Egypt, t. 6, f. 2.

Red ash; tail, rump, belly, vent, lower wing-coverts, and secondaries, white; primaries and base of wing-coverts, black; chest, bluish-white. Egypt, Nubia, and Tartaria.

Ch. Modestus, Licht.

Ash-brown; throat, belly, and outer tail feathers, white; forehead, eyebrows, and sides of neck, grey; chest, clouded; vent and thighs, reddish-ash; quills, rump, and middle of tail, brown. Length, nine and a half inches. Tarsus, sixteen lines. Brazil.

There are also in the hot climates some species of lapwing, whose wings are armed with one or two spurs, and others which have at the bottom of the bill fleshy appendages or caruncles. Their tarsi are shielded. These birds are very importunate by their cry at the least noise which they hear; they defend themselves with courage against birds of prey. They live in open countries.

Cayenne Sandpiper. Parra Cayennensis, Enl. 836.

Back, purple-green; neck, reddish; forehead, throat, chest-band, and tail, black; edge of wings, belly, and base of tail, white. Cayenne. The *Charadrius Lampronotus*, Wagler. The *Terutero*, Azara, n. 386.

Goa Sandpiper, Lath. *P. Goensis*, Enl. 807.

Head, neck, quills, and tail-band, black; line on side of neck, chest, belly, wing-band, and base of tail, white. India. The *Charadrius Atrogularis*, Wagler.

Senegal Sandpiper, Lath. *P. Senegalla*, Lin. Enl. 362, or better *Vanellus Albicapillus*, Vieill. Gal. 236.

Brown; throat, quills, and tail-band, black; wing-band, belly, base, and tip of tail, white. The *Charadrius Albicapillus*, Wagler.

Louisiana Sandpiper, Lath. *P. Ludoviciana*, Enl. from which *Van. Gallinaceus*, Tem. probably does not differ specifically.

Grey-brown; beneath, and base of tail, reddish-white; crown, quills, band on tail, black.

The manners, legs, bill, form, and the distribution of their colours in these birds, resemble the lapwing and the plovers. There was no reason to place these with the jacanas, which have other characters in nearly all these points.

Tr. Macroptera, Cuv.

Grey, with the head and belly black, armed and

wattled, with the wings considerably larger than the tail. A new species from Java. The *Vanellus Tricolor*, of Horsf.

* To these may be added—

Charadrius, Brissonii, Wagler, n. 55, from Brisson, n. 8. *Parra Dominica*, Gmel.

Pale fulvous; throat, chest, and beneath, very pale yellow.

Vanellus Gallinaceus, Temm. Wagler. *Van. Goensis*, Var. Vieil.

Ash; throat and beneath, white; tail, white; black band; quills, top of head, and side of neck, black. Timor.

Tringa Lobata, Lath. Sup.

Ferrugineous olive; throat and beneath, white; top of head, occiput, sides of chest, quills, and tips of tail, black. New Holland.

Charad. Magnirostris, Lath. The genus *Burhinus*, Illiger, is perhaps an *Oedicnemus*. Lichtenstein, in his sale catalogue (1793), described a *Charadrius Heteroclitus*, which has only three toes, and one of the toes versatile, which he proposed to form into a genus under the name of *Pipis*.

Oyster Catchers. Hæmatopus, Lin.

Have rather a larger bill than the plovers and the lapwings. It is straight, pointed, and compressed in

a wedge, and strong enough to enable them to force open the bivalve shells, and get out their inhabitants; nevertheless, they also rake up the earth in search of worms. The nasal fossæ, very deep, occupy only half the length of the bill, and the nostrils form a little cleft in the middle of it. Their legs are of moderate height, the tarsi reticulated, and the feet are divided into only three toes.

The *Pied Oyster Catcher*, Lath. *Hæmatopus Ostralegus*, L. Enl. 929, Brit. Zool. pl. D. Cates. I. 85,

is also called *Sea Pie*, on account of its black plumage, with the belly, throat, base of the wings, and tail of clear white. In summer, the white of the throat disappears. It is a bird of the size of the duck, with the bill and feet red. Found in Europe. The *Ostralega Europea*, Lesson.

Hæm. Palliatus, Tem.

is found in Brazil. The bill is longer than in the last, and there is no white under the throat. Wilson confounds this with the pied species.

The *H. Brasiliensis* of Lichst. *Brown-backed Oyster Catcher* of Latham.

New Holland Oyster Catcher, Lath. H. *Hæm. Luctuosus*, Cuv.

belongs to the Malouine Islands. In this species,

the black descends more on the breast. The *Hæmatopus Leucopus*, Garnot, and *Ostralega Leucopus* of Lesson.

Hæm. Niger, Cuv. *H. ater*, Vieil. Gal. t. 230, Freycin. Voy. t. 34,

is proper to the antarctic hemisphere. The plumage is entirely black. The *H. Capensis*, Lichst.

We should also place near the Plovers and the Oyster Catchers,

* COURSERS, Lath. CURSORIUS, Lac. TACHYDROMUS, Ill.

In which the bill is thinner, but equally conical, arched, without furrow, and moderately cleft. Their wings are shorter, and their legs, higher, are terminated by three toes without webs, and without thumb.

Charadrius Gallicus, Gm. *Cursorius Isabellinus*, Meyer, Enl. 795.

This species is sometimes, though very rarely, found in France and England, but is originally from the north of Africa. It is bright fawn, with the belly whitish.

Coromandel Courser, Lath.* *Ch. Coromandelicus*. *Curs. Asiaticus*, Lath. Vieill. Gal. 232, Enl. 892,

has been brought from India. It is grey-brown, with the breast red.

* The *C. Gallicus*, Gmel. Lath. Hist t. 145. *C. Isabellinus*, Hors. Lin. Tran. is a *Charadrius*.

Both these species have a white and a black stripe behind the eye. Their name is taken from the rapidity with which they run. Nothing of their manners is known.

Collared Courser, Lath. H. *Curs. Chalcopterus*, Tem. Col. 293.

Ashy; chest-band, black; quills black, with a glossy violet bronze spot at the end; forehead and orbit, reddish-white: head, rufous; lores and band under the eye, chestnut. Senegal.

Double Collared Courser, Lath. H. *C. Bicinctus*, Tem. Man. Orn.

Brown; feathers, pale edged; secondaries, red; quills, blackish; cheek and nape, black banded; neck collars, double; beneath, isabella. Interior of Africa.

The *Tachydromus Collaris*, Vieill. *Curs. Temminckii.* Swainson Zool. III. 106. Like *C. Asiaticus*, but larger.

Lores, white; chest, isabella; abdominal band, chestnut; middle of belly, black; vent, brownish; secondaries, white tipt. Length, seven and a half inches. Wagler refers *Charadrius Melanocephalus*, Lin., the genus *Pluvianus* of Vieil., to this genus. The *Tachydromus Senegalensis*, Licht. Berl. Cat. 1817.

Cursorius Grallator, Lin. Trans. xvi.

Ochraceous; head and back, varied brown and black; chest, with two parallel black bands Africa.

As far as can be judged by the exterior, it is here that we should place

CARIAMA, Lath. CARIAMA, Briss. MICRODACTYLUS, Geoff. DICHOLOPHUS, Illiger.*

Have the bill longer, more bent, and cleft to under the eyes, which gives them something of the appearance and character of the birds of prey, and approximates them in some degree to the herons. Their legs, shielded and very high, are terminated by extremely short toes, slightly webbed at their base, and by a thumb which cannot touch the ground.

Only one species is known—of South America.

Brazilian Cariama, Lath. H. t. 142. *Microd. Cristatus*, Geoff. *Palamedea Cristata*, Gm. *Saria*, D'Azara, n. 340, Ann. du Mus. d'Hist. Nat. XII. pl. 26, Col. 237, and Vieill. Gal. 259.

This surpasses the heron in size, and feeds on lizards and insects, which it hunts in elevated places, or on the sides of the forests. Its plumage is grey-yellow, dashed with brown; some thin feathers, placed at the base of the bill, form a slight crest, which falls forward. It flies seldom, and badly. Its voice is strong, and resembles that of a young turkey. As its flesh is esteemed, it has been domesticated in several places.

* *Microdactylus*, short-fingered;—*Dicholophus*, crest in two rows;—*Hæmatopus*, blood-coloured feet. M. Vicillot has preferred the barbarous name *Cariam*, which should be pronounced Cariama.

The Family of CULTIROSTRES

Are known by their thick, long, and strong bill, in general trenchant and pointed; and is composed almost entirely of birds united by Linnæus under the genus ARDEA. A great number of these species have the trachea differently folded in the males. Their cœca are short, and even the herons properly so called have but one.

We subdivide them into three tribes. Those of the

CRANES. GRUS, Cuv.

Have the bill straight, and but little cleft. The membranaceous fossæ of the nostrils, which are large and concave, occupy nearly one half of its length. Their legs are shielded, the toes moderate, the external but little palmated, and the thumb scarcely touches the ground. They have nearly all more or less of the head and neck naked. Their habits are more terrestrial, and their food more vegetable than those of the following genera; they have, therefore, a muscular gizzard, and the cœca long. Their lower larynx has only one muscle on each side.

We may leave at the head of this genus, as Pallas (Spic. Zool. iv. 3) has done,

The AGAMI. PSOPHIA, L.

Which have a shorter bill than the other species.

The head and neck are covered with down only, and round the eye is naked. They live in the woods on grains and fruits.

Psophia Crepitans, L. Enl. 169. The *Grus Psophia* of Pallas, Spec. iv. t. 1.

Is the commonest species of South America, and is so named from its faculty of making a hollow and deep noise, which at first seems to proceed from the anus; it is as big as a capon. The plumage is blackish, with bright violet reflexions on the breast, and the mantle is ash, mixed with fulvous towards the top. This bird is of a grateful disposition, attaches itself in the manner of a dog, and can be so far tamed it is said as to conduct other birds of the poultry-yard. It flies badly, but runs with rapidity. It constructs its nest on the ground at the foot of a tree. It is good eating.

It is called *Agami* at Cayenne, according to Barrère; *Caracara* in the Antilles, according to Dutertre. As the name Trumpet-bird is also given in Africa to a Hornbill, Fermin (Descript. de Surinam) ridiculously enough transfers to the *Agami* the character of two bills, one on another. The *Agami* has been long confounded with the *Macucagua* of Marcgrave, which is a *Tinamus*. *Psophia* is a name coined by Barrère, from ψοφεω, to make a noise.

Psophia Viridis, Spix. 8.

Above, green; beneath, black; coverts and secon-

daries, green; wing-coverts, greenish; middle of wing, shining blue; lower part of neck, shining violet. Brazils. Length, 19 inches.

P. Leucoptera, Id. 84.

Above and beneath, black; quills and secondaries, white; wing-coverts, violet and green, shiny; back, black; lower part of neck, copper-violet. Brazils. 21 inches.

Some other foreign *Cranes*, which have the bill shorter than ours, ought to follow. They form the genus *Anthropoides* of Vieillot.

The *Crowned Crane*, Lath. Edw. t. 192. *Ardea Pavonia*, L. Enl. 265, and the young, Vieill. 257.

Of a slender make, four feet high, ash-coloured, with a black belly, the rump fulvous, and the wings white. Its naked cheeks are coloured with tinted and bright rose colour, and the occiput is crowned with a tuft of slender yellow feathers, which are spread out at pleasure. This fine bird, whose voice resembles the sound of a trumpet, comes to us from the eastern coast of Africa, where it is frequently brought up in confinement and fed on grain. In a wild state, it frequents inundated lands, and feeds on fish.

Demoiselle Heron, Lath. *Ardea Virgo*, Enl. 246, similar to the last in form, and nearly so in size;

ash-coloured, with a black neck, and two white ornamental tufts formed by the elongation of the slender feathers, which cover the ear. Such as are in captivity are remarkable for their affected and ridiculous gestures and movements.

The anatomists of the academy had applied to this bird, on account of its gestures, the name of *Scops*, *Otus*, and *Asia*, by which the ancients meant air-owls. Buffon, who has ably refuted this error in his article on the owls, adopts it from forgetfulness in that of the demoiselle.

See *Windpipe* Dodart. Mem. iij. t. 35, Pitf. Mem. t. at p. 204. Phil. Trans. lvi. t. 11. Lin. Trans. iv. t. 10, f. 4.

Add—

Stanley Crane. Anthropodes Stanleyanus, Vigors, Zool. Jour. ij. t. 8.

Crown of soft white feathers; neck, wings, and body, bluish-ash; tips of quills and shaft of tail, black-brown; ears—streak, brown. Length, forty inches. Cape of Good Hope.

Is probably the *Grus Paradisea* of Licht.

The Common Cranes have the bill as long, and longer than the head.

The Common Crane. Lath. *Ardea Grus*, and *Grus Cinerea.* Bechst. Enl. 769. Frisch. 194. Naum. 1st Edit. 2. f. 2.

Four feet and more, in height; ash coloured, with

the throat black, and the rump ornamented with long, stiff, and curled feathers, in part. This bird has been celebrated in all ages, by its autumnal migrations from north to south, and its return in spring, in numerous and well organized flocks. They eat grains in cultivated lands, but they prefer the insects and worms, which a marshy country affords. The ancients have said a great deal on these birds, on account of their migrations, which appear to be principally through Greece and Asia Minor. See windpipe, Bloch. Bech. Berl. Nat. iv. t. 16. Phil. Trans. l. vi. t. 11. f. 4. Lin. Trans. iv. t. 12. f. 4.

To this genus should be added:

Brown Crane, Lath. *Ard. Canadensis*, Edw. 133. The *Indian Crane*, Edw. 45, Enl. 865. *A. Antigone*, Vieill. 256.

Forehead and nape, naked, pale; body, ashy; wing-feathers, testaceous, with white shafts. The *Grus Poliocephæa* of Wagler.

Hooping Crane, Lath. *Ard. Americana*, Lin. Pl. Enl. t. 889. *Ard. Leucoceranus*, Pallas. It. 2, n. 30, t. 1, which appears to us to differ nothing from the *Ard. Americana*.

White; primaries, black; nape-spot, blackish; upper quills, like those of an ostrich, broad and soft. When young, back and scapular, reddish-brown. The *Grus Struthio*, Wagler, see Edw. t. 132, and Wilson, A. O. viii. t. 64, f. 3. Wagler regards Pallas's as a distinct species, the same as the *Siberian Crane*, Lath. *Ardea Gigantea*, of Gmelin's Travels.

Wattled Heron, Lath. Hist. ix. t. 148. *Ardea Carunculata*, Gm. which is not a *heron*, as Gmelin has stated.

Slate-coloured; beneath, black; neck, white; chin, with two feathered wattles.

See Lath. and Syn. v. t. 78, cop. from Forster, iconined, t. 100. South Africa.

Indian Crane, Lath. *Ardea Antigone*, Vieil. Gal. 236, Pl. Enl. 865, Edw. 45.

Head and collar, naked, papillary; body, ashy; primaries, black; bill, yellow. Inhabits East Indies and New Holland.

Wagler regards Pl. Enl. t. 865, as a distinct species, under the name of *G. Torquata*, with bill black.

Perhaps should be added:

Black-bellied Indian Crane, Lath. H.

Crown, crimson; nape, black; lores and orbits, crimson; head and breast, white, black spotted; belly, thighs, and vent, black; back, wings, and tail, dusky-blue; quills, black. India. Snowy Mountains of Surinagur. Bill, pale; legs, yellowish.

Australasian Crane, Lath. Hist.

Crown, bald, yellow-white; lores and rest of head, naked, crimson, carunculated; chin and throat with long black hairs, pale blue-ash; primaries and tail, black; tail, very short; legs, black. New Holland.

We can place no where else than between the Cranes and the Herons,

Scolopaceous Heron. Lath. *A. Scolopax.* Gm. Enl. 482, of which bird M. Vieillot has made his genus *Aramus.* Gal. 252. and Spix. pl. 91, calls it *Rallus Ardeoïdes.*

This has the bill rather thinner, and more cleft than that of the Cranes, swelling out toward the latter part of its length. The toes, which are all long, have no web. It has the manner and appearance of the herons; and the plumage is brown, with white spots on the neck. Wagler has changed the name to *Notherodius Guarauna;* the *Guarauna* of Maregrave; the *Rallus Gigas,* of Lichtenstein; and *Aramus Carau,* Vieill. from the *Carau* of Azara, n. 366. The *Rallus Giganteus* of Charles Bonaparte, (not *Scolopax Guarauna* of Linn.)

EURYPYGA. Illig.

A name which M. Vieillot has changed into *Helias, Ardea Helias.* L. Enl. 702.

In which the bill is thinner, than that of the Cranes, but furnished with similar nasal fossæ, is cleft as far as below the eyes, as in the heron; but it

* This dentation of the middle claw is also found in the *Boatbill* and the *Scopus;* as the first are the Heron with dilated bill, the latter have those in the most compressed.

has no nudity at its base. It is a bird about the size of the partridge, to which its long and thin neck, its broad and spreading tail, and its legs but little elevated, give an appearance different from that of other waders. The plumage, varied with bands and lines of brown, fulvous-red, grey, and black, remind us of the finest moths. It is found on the banks of rivers in Guiana.

The *Helias Phalanoides*, of Vieill, and the *Scolopax Helias*, Lath.

The second tribe is more carnivorous in its regimen, and may be recognized by the strength of its bill and the breadth of its toes. At the head of these may be placed

The Boat-bill. Cancroma. Lin.

Which are nearly allied to the herons by the strength of their bill, and the kind of food consequent thereupon, without any extraordinary form of such bill; by strict analysis, however, it will be found to be the night heron's bill, very much spread out on the sides; it is indeed very broad from right to left, and formed as it were with two spoons applied one against the other on their concave sides; the mandibles are strong and trenchant, and the upper has a sharp tooth on each side of the point; the nostrils open near the base, and are prolonged in two parallel furrows, which continue to near the point. The feet

have four long toes, nearly destitute of membrane, hence these birds frequent trees on the banks of rivers, whence they precipitate themselves on the fish, which form their most common food; their motions are slow, and their attitude is stooping and contracted, like that of the herons. The Genus *Cymbops*, of Wagler.

Cancroma Cochleara. L. Enl. 38 and 369. Vieill. Gal. pl. 249.

Is as big as a pullet; whitish, with the back grey, or brown; and the belly, red; the front is white, behind which is a black cap, which is changed into a long crest in the adult male. It inhabits the hot and humid parts of South America.

At the end follow

The Herons. Ardea. Cuv.

Which have the bill cleft to under the eyes, with a small nasal foss, prolonged by a furrow down nearly to the point. They are remarkable moreover for a trenchant indentation at the inner edge of the nail of the middle toe; their legs are scaly; the toes and the thumb are rather long, the external palm observable; and their eyes are placed in a naked skin, which is extended down to the bill. Their stomach is a very large bag, but little membranaceous, and they have only one very small cœcum. They are

melancholy birds, which nestle and perch on the banks of rivers, where they destroy a great deal of fish. Their dung burns the trees. There are in both continents very many species, which can be subdivided only by some diversities of plumage.

The true herons have a very slender neck, furnished at the base with long pendant feathers.

The Common Heron. Ardea Major, and Ardea Cinerea, Lin. Enl. 755 and 787, Frisch. 178, 9, Naum. 1 Ed. 25, f. 33, 4.

Bluish-ash, with a black crest on the occiput; the forepart of the neck is white, sprinkled with black dots. It is a large bird, very destructive to river fish, and was celebrated in ancient times for the pleasure taken by the great in hunting it by falconry.

Ard. Purpurea, Enl. 788, Naum. 1, Ed. Sup. 45, f. 89-90.

Grey and red, or purplish.

Great Heron. A. Herodias, Gm. Wilson, 8, 65, 2, the young of which is probably Enl. 858.

Crested, bluish-ash; thighs, ferrugineous; middle toe shorter than the tarsus; adult, crown, bluish and white, with two long tapering black feathers; back with long narrow white tapering plumes; crown, dark slate, when young. North America.

A. Cocoi, Lath. Spix. 90, under the false name of *Ardea Macquari*.

Crest and back, ash; beneath, black-spotted; sides of head, black. Brazils.

The *Cocoi* of Marcgrave; *A. Palliata*, Ill.; *A. Cærulescens*, Vieill. from Azara, 347.

Louisiane Heron. A. Ludoviciana, Gm. Enl. 909, from which *A. Virescens*, Enl. 908 and 912; is not specifically different.

Crested, bluish-slate; back, rump, and beneath, white; neck-feathers purplish, with long streamers.

New Guinea Heron. A. Novæ Guinæ, Lath. Enl. 926, approximates in some degree to the *A. Scolopacea* by the bill.

Bill, black; feet, brown; head, not crested.*

The smaller herons with shorter feet have been called *Crabeaters.*

The most common species in the mountainous parts of France is

A. Minuta and *Danubialis*, Gm. Enl. 323, Frisch. 207, Naum. 1, Ed. 28, f. 37.

Fawn-coloured, with the cap, back, and wings, black. It is somewhat larger than a rail, and sojourns in the neighbourhood of standing waters.

The ONORES unite to the shape of the crabeaters, the size of the true heron, and the colours of the bittern. They form the genus *Tigrosoma* of Swainson.

* To these may be added *A. Melanocephalus*, Children. The *A. Atricollis* of Wagler. *A. Pacifica*, Lath. The *A. Bullaranjaus* of Wagler.

Lineated Bittern. *A. Lineata,* Gm. Enl. 860.

Bill and lore, blue; head and neck above, bright rufous, brown-lined; under parts of body, dirty-white. Cayenne.

Tiger Bittern. *A. Tigrina,* Gm. Enl. 790, which appears to be the young of *Ard. Flava,* Gmel.

Bill, greenish; top of head, black; plumage in general, deep rufous, marked with black like the skin of a tiger. Cayenne, Surinam, &c. Also *Ard. Marmorata,* Vieil. from Azara, n. 353.*

The EGRETS are herons, whose plumes on the lower part of the back are, at a certain period, long and attenuated.

The handsomest species, whose feathers are employed for the purpose indicated by the name given to these birds, are

The *Little Egret.* *Ardea Garzetta,* Enl. 901.

One half smaller than the heron, altogether white, and the attenuated feathers do not pass the tail.†

The *Great Egret.* *A. Alba,* Enl. 886.

Altogether white, but of a larger size.

* Add—*Ardea Fasciata,* Such. Zool. Jour. iv. 254, which Wagler thinks is the young *Ard. Soco.*

† See Naum. Voy. Nachtr. t. 47, f. 92, the Pl. Enl. t. 901; the young is all whitish. *Ardea Xanthodactylos,* Gmel. Reise, 283, and when gaining the adult plumage, *Ardea Nævia,* Gmelin Reise, 164.

These two species are found in Europe. M. Temminck thinks that *A. Alba* is the young of *A. Egretta;* and that the Pl. Enl. 901, does not represent the little egret of Europe, but that of America.*

There is a third species with shorter tarsi, whose attenuated feathers considerably exceed the tail. It is the

Great Egret, Lath. *Ar. Egretta*, Enl. 925.

Double the size of *Alba;* plumage also white. Louisiana and North America generally.

We also approximate to the egrets—The *Ardea Leuce*, Illiger.†

The *Crabeater of Mahon*. *A. Comata*, Gm. Enl. 348, Naum. 1st Ed. 22, f. 45.

A bird of the south of Europe, with reddish-brown back; wings, belly, and tail, white. The adult has

* See Naum. Vagl. t. 49, f 91; when young, *Ardea Candida*, Brisson, and when gaining the adult plumage, *Ardea Egrettoides*, Gmelin, Reise y. t. 25. Length, three feet, six inches; bill, six, and tarsi, eight inches.

† Add—*Ardea Flavirostris*, Temm. Pure white; occipital crest, small; scapulars, elongate, filiform; bill, yellow; feet, black. Senegal, Java, and Cape of Good Hope. *Ardea Pealii*, Ch. Bonap. Crested snowy-white, bill, flesh-coloured; legs, black; toes beneath, yellow; tarsus, more than five inches long; crest and neck-fringe, large and compact acute feathers; back with straight filiform plumes, reaching beyond the tail. Florida. Perhaps same as former.

the neck yellowish, and a long tuft at the occiput. According to the exact researches of M. Meyer, *Ardea Castanea*, Gm., or *Ralloides*, Scopol. *A. Squaiotta*, *A. Marsiglii*, *A. Pumila*, and even *A. Erythropus*, and *A. Malaccensis*, Gm. Enl. 911, are only varieties or different ages of *A. Comata*. *A. Senegalensis*, Enl. 315, is also a young one. It may perhaps be the true crane of the Balearic Islands of Pliny.*

Add—

Snowy Heron, Var. A. Lath. *A. Candidissima*, Wils. lxiii. 4.

Bill, black; whole plumage, snowy-white, long, matted, hair-like feathers on sides of breast and back. Carthagena, United States.

A. Bubulcus, Savigny. Eg. Ois. pl. viii. is described by Wagler as the young of *Ardea Russata*, Tem.

Violet Stork, Lath. *A. Leucocephala*, Gm. Enl. 910.

Bill, dusky; head and neck, white; vent and under tail-coverts, same. India.

A. Jugularis, Forster. *Gularis*, Bosc. Act. de la Soc. d'Hist. Nat. in fol. pl. II., or *Albicollis*, Vieil. Gal. 253.

Plumage in general bluish-black, with the exception of the throat, which is white. Senegal.†

* *Ardea Botaurulus*, Schrank. *Ardea Castanea*, *Ardea Senegalensis*, Lath.

† *Ardea Jugularis*, Forster, is perhaps distinct; and may be *Ard. Cærulea*, B. Lath., and *Ard. Martook*, Vieil.

Blue Heron, Lath. Var. A. *Ar. Cærulea*, Enl. 349.

Head and neck, rufous-brown; rest of body, deep blue. Cayenne. *A. Equinoctialis*, Catesb. 77, may be the young, notwithstanding the difference of colour.

Reddish Egret, Lath. *A. Rufescens*, Gm. Enl. 902.

Head and neck with long loose feathers, of a rusty rufous-colour; long feathers of the back, the same. Louisiana.

Demi-Egret, Lath. *A. Leucogaster*, Enl. 350.

Bill and lore, dusky-yellow; above, deep blue-black; white underneath. Cayenne.

Agami Heron, Lath. *A. Agami*, Enl. 859.

Bill, dusky; crown, blue-black; nape, light-blue, with six or eight long narrow feathers; back, wings, and tail, deep blue; neck and beneath, rufous. Cayenne.*

Ardea Rugata, Tem. *Ard. Affinis*, Horsf., bird of second year. *Ard. Æquinoctialis*, B. Lath. from Pl. Enl. 910. *A. Cornuta*, B. Lath. *Ard. Coromandelica*, Licht., and *Ard. Bicolor*, Vieill. Young is *Ard. Ruficapilla*, Vieill. Ois. Egypt, t. 8, fig. left, the *Ard. Bubulculus*, Cuv. *Ardea Ibis*, Haselq.

Bill, pale-yellow; tarsi, brown; toes, black; head, and back, yellowish.

* The young is *Ardea Fusca*, Lath. Pl. Enl. t. 858.

Blue Heron. *Cærulescens*, Lath. *Ard. Cærulea*, Lath. (not Var.), Wilson, A. O. t. 62, f. 3. Pl. Enl. t. 349. Catesb. Car. t. 76, young. *Ard. Cyanopus*, Lath.

Crested, bluish-slate; feathers of the back and breast, slender, long; head and neck, purplish-brown; three occipital feathers; young not crested; head and neck coloured like the body. North America.

Yellow-necked Heron. *Ard. Flavicollis*, Lath. *Ard. Nigra*, Vieil.

Back, wings, and tail, bluish-black; streak on side of neck, yellow; head, occipital crest, black; throat, white, with red triangular spots; chest, black and white, varied. Java, New Holland.

White-fronted Heron. *Ardea Novæ Hollandiæ*, Lath., not Vieil. *Ard. Leucops*, Wagler, Phil. Bot. Bay, t. at p. 163.

Forehead, orbits, chin, and throat, white slate-coloured; quills and tail, black; chest and belly, reddish. New Holland.

Ardea Ardisiaca, Wagler.

Head, neck, tail, and body, slate coloured; bill and feet, black. Mus. Paris.

Beautiful Heron. *Ardea Speciosa*, Horsf. Java, t.

Like *Ard. Ralloïdes;* yellow occiput, with four long feathers; neck, yellowish; throat, dusky; above, slate-black; tail, wings, and body beneath, white, when young. Java.

Malacca Heron. Ardea Malaccensis, Lath. Pl. Enl. t. 911. *Ardea Tranquebarrica.* Otto Ubers. Buffon.

Head and neck, streaked, brown and white; back, brown; wings and beneath, white.

Ardea Leucoptera, Vieill.

Nape, with two long feathers; wings, chest, beneath, and tail, white; back, dusky-red; head and neck, reddish. New Holland.

The BITTERNS have the feathers of the neck loose and divided, which makes it appear thicker. They are usually spotted or striped.

Bittern of Europe. Ardea Stellaris, Enl. 789, Frisch. 205, Naum. 1st Ed. 27, f. 36.

Golden-fulvous, spotted, and pointed with blackish, with a greenish bill and feet; sojourns in reeds, from which it utters a horrible sound, which has been the cause of the bird having been named *Bos-taurus*. Its position in a tranquil state is singular, the bill being raised towards the sky.*

Mokoho Bittern, Vieil. *A. Minor*, Wils. viii., lxv., 3; or *A. Stellaris*, B. Gm. Edw. 136.

Bill, black and yellow; top of head, black; neck,

* A very similar bird, from New Holland, has been called *Ardea Perci-loptera*, Wagler.

brown colour; upper parts of body, rusty colour; below, whitish. N. America.*

Zig-zag Bittern, Lath. *A. Undulata*, Gm. Enl. 763.

Bill, brown; plumage yellowish, or rufous-grey, crossed with narrow streaks of black-brown. Cayenne.†

Philippine Heron. A. Philippensis, Gm. Enl. 898.

Bill, greenish-yellow; head and upper neck, rufous-brown; white underneath. Philippine Isles.

Ardea Brasiliensis, Lath., Azara, n. 354; the *Soco*, Margrave; *Ardea Soco*, Wagler.

Greenish-ash, speckled with fulvous; head and neck, copper-red, black waved; chest and beneath, ash.

Ardea Leuconotus, Wagler.

Like *Ard. Nycticorax*; cheek, grey; eyebrows, spot under eye, and base of back, white; neck and beneath, pale ferruginous; belly, white streaked; wings, ash; back and scapulars, black. Senegal.

Ardea Cyanura, Vieil. *Ardea Scapularis*, Illiger. *Ardea Javanica*, Horsf. *Ardea Cærulea*, ♀ Gmel., the *Ardeola* of Marcg; when young, *Ardea Fuscicollis*, Vieil., from Azara, n. 357. South America, Africa, and India.

Ash crested; front of head, white, red-streaked; wing-

* The *Ardea Mokoho*, Vieill.

† *Ardea Radiolata*, Wagler. See Brisson, v. t. 37, f. 2. Temm. thinks this is the young of the former.

coverts, greenish, red-edged; crown and tail, black. Cayenne.

The NIGHT HERONS have, with the port of the bitterns, and a bill more gross in proportion, some slender feathers implanted in the occiput of the adult.

We have but one in France.

The *Night Heron. Ardea Nycticorax*, L. Enl. 758, Frisch. 203, Naum. 1st Ed. 26, f. 55.

The male is white; the cap and back are black. This young bird is grey, with brown mantle and blackish cap. En. 759.

According to M. Meyer, whose results we follow here, *Ard. Grisea*, *Ard. Maculata*, and *Ard. Badia*, Gm. refer to different states of this bird.

Gardenian Night Heron. Ard. Gardeni. Gm. Enl. 309,

Seems to be the young of the common night heron; it is the same as *A. Maculata*, Frisch, 202.*

Add,

* The *Ardea Hoactli*, Lath. Wilson, vii. t. 61. f. 2. Azara. 357. *Ardea Tayazu Guera.* Vieil. The young is *Ardea Jamaicensis*, and *Ardea Hoactli*, ♀ Lath. *Azara.* 355. *Ardea Maculata*, Vieill. *Ardea Grisea*, Gmel. Pl. Enl. 759. *Ardea Ferruginea*, Lath. *Ardea Nævia*, Miller. Cim. Phys. t. 35. *Ardea Torquata*, Shaw, when getting the male plumage. *Ardea Obscura*, *A. Badra*, and *A. Cracca*, Lath. Naum. t. 93.

Black-crested White Heron. A. Pileata. Lath. or *A. Alba.* B. Gmelin. Enl. 907.

Bill, black; plumage wholly white, except a black patch on the crown; pendant crest. Guiana.*

Caledonian Night Heron. Ardea Caledonica. Lath.

Bill, black; crown, black; general colour of plumage ferrugineous, inclining to brown. New Caledonia.†

Cayenne Night Heron. A. Cayanensis, Enl. 899. or *A. Violacea,* Wils. viii. lxv. 1, of which, *A. Jamaïcensis,* Gm., is the young.

Bill, black; crown of head, white; plumage generally bluish-ash colour. Cayenne.‡

Ardea Sibilatrix. Tem. Pl. Enl. 271.

Throat and narrow band down the neck, pure white; all underneath, and back, and tail, same; head, cheeks, and a portion of the long feathers of occiput, blackish-blue; mantle and wings, lead-colour; small and middle coverts, red. Paraguay and Brazil.§

As to the rest, we must remark, that the subdivisions of the genus heron are neither very important nor precise.

* *Ardea Alba.* B. Gmel. Prin. Neuwied. Albild. iv. t. good.

† *Ardea Sparrmannii,* Wagler.

‡ Wilson, A. O. viij. t. 63. f. 1. *Ardea Scgetacea.* Vieill. *Ardea Jamaicensis,* is more like the young of *Ardea Nycticorax.*

§ The *Hute du Soleil,* Azara, and *Ardea Cyanoccphala,* Vieill not Lath.

Some are very small, and have the legs quite feathered to the end of the tarsus; they form the sub-genus *Ardeola* of Charles Bonaparte.

Ardea Sturmii, Wagler.

Blackish-slate; neck feathers, orange edged; neck-streak, whitish; body beneath, paler, yellowish lined. Senegal.

Ardea Sinensis, Lath. *Ard. Lepida*, Horsf.

Brownish-yellow; above, darker; crown, crest, quills, and tail, black. China and Java.

Cinnamon Heron. Ardea Cinnamomea, Lath. *Ardea Bilineata*, and *Ardea Australis*, Mus. Paris.

Cinnamon; beneath, paler; throat, brown-streaked; chin and vent, white. China and Java.

Little Bittern. Ardea Minuta. Lath. Pl. Enl. t. 323. Naum. Voy. t. 28. f. 37, when young, Edw. t. 275. Naum. t. 25. *Ardea Danubialis*. and *Ardea Solonyiensis*, Lath. Naum. t. 12. f. 26.

Crown, back, quills, and tail, greenish-black; neck, wing-coverts, and belly, pale-fulvous. Europe, Asia.

Minute Heron. Ardea Exilis, Gmel. Wils. A. O. viij. t. 65. f. 4, *Ard. Erythromelas*, Vieill. from Azara, n. 360; when young, *Ard. Variegata*, and *Ard. Involucris*. Vieill. from Azara, 361.

Chestnut; beneath, whitish; neck above, rufous; sides

and wing-coverts, cream; crown, primaries, tail, and tuft, on each side of the breast, black. North and South America.

Spotted Heron. *Ardea Pusilla*, Vieill.; and young, *Ardea Maculata*, Lath. and *Ardea Melanoptera*, Bechst.

Like former, but smaller; bill, pale; side of neck, outer wing-margin, sides of head, chest, and back, chestnut-brown; beneath, whitish, varied with reddish. New Holland.

The third tribe, besides a grosser and smoother bill, has palmations almost equal, and tolerably strong, between the bases of the toes.

The Storks. Ciconia.

Have a gross bill, moderately cleft, without foss or furrow, near the base of which are the nostrils, and in the back part of the interior of this bill is a tongue extremely short. Their legs are reticulated, and the anterior toes pretty strongly palmated at their base, especially the external ones. The slight and broad mandibles of the bill, striking one against the other, produce a clattering noise, which is almost the only sound heard from these birds. Their gizzard is not very muscular, and the cœca so small that they can hardly be perceived; the lower larynx has no muscle peculiar to itself; the bronchiæ, are longer and composed of more complete rings than usual in birds.

We have two species in France.

The White Stork. Ardea Ciconia. L. Enl. 866. Frisch. 196. Naum. 1st. ed. 22. f. 31.

White, with the wing-quills, black; the bill and feet, red. This is a large bird, for which the people bear a peculiar respect, founded, no doubt, on its destruction of serpents and other hurtful animals. It builds its nest, in preference, on the summits of towers, belfries, &c., and returns there every spring, after having passed the winter in Africa, and having had one brood in that country.

The Black Stork. Ardea Nigra, L. Enl. 399; and the young, Frisch, 197. Naum. 23. f. 32.

Blackish, with purple reflexions, and white belly; frequents retired marshes, and nestles in forests.*

To this genus also belong

The American Stork. A. Maguari, Vieill. Gal. 254. and Spix. lxxxix. under the false name of *Ciconia Jubura.*

Which differs little from our white stork, except in

* The *Ciconia Nigra,* Bechst. *Ardea Chrysopelargus,* Licht. Humb. Cat. and the *White-bellied Jabiru,* Lath. Hist., when young the *Ciconia Frisca.* Brisson, Pl. Enl. t. 399. Found in Europe, North Africa, and India, called *Maleykh,* or *Jabiru,* in Bengal. See account of its change of plumage, Mont. Lin. Trans.

the ash-coloured bill. It is the *Ciconia Americana*, Brisson, and *Ciconia Maguari*. Temm.

Small Black Stork of Nubia. Cic. Abdimii. Licht. Ruppel. Av. t. 8.

Purple-green; belly and rump, white; face and throat, naked; frontal shield, depressed, cartilaginous; wings, beneath, purplish-green. North Africa, Egypt, and Senegal.

The Violet Stork. C. Leucocephala. Gm. Enl. 206.

Bill, dusky-brown; tongue extremely small; above, generally bluish-black, glossy with violet; head and upper neck, white; below, same. East Indies. The *Ciconia Umbellata*, Wagler.

Among the foreign species may be distinguished,

The Storks with naked neck,

Whose bill is still more gross than in the other species, but of a light substance; and among them,

The Gigantic Crane. Ardea Dubia. Gm. *Ard. Argala.* Lath.

Which have under the middle of the neck an appendage like a thick sausage. The feathers of the under part of the wing, give out into long and downy plumes, called *marabous*. There are two species: one of Senegal, with simple mantle, (*Cic. Marabou.* Tem. Col. 300.) The other of the East Indies, in which

the wing-coverts are bordered with white. (*C. Argala*, Tem. Col. 301.) Their wide bill enables them to catch birds on the wing.

Add,

C. Capillata, T. Col. 312.

Plumage, bottle-green, clouded with greyish; tail, great wing-coverts, and secondary quills, tinted with metallic-green. The last range of the middle-coverts, has on each feather a large round reddish-brown spot. Java and Sumatra. *Ciconia Javanica*, of Dr. Horsfield.

The Jabirus. (Mycteria, Lin.)

Which Linnæus has separated from Ardea, are very analogous to the storks, much more so than even these last are to the herons proper. The moderate aperture of the bill, the nostrils, the reticulated envelope of the tarsi, and the considerable palmations, are the same as in the storks. Their mode of life is also identical.

Their only peculiar character is a bill slightly curved towards the top.

The best known species,

American Jabiru. Mycteria Americana. Lin. Enl. 817.

Is very large; white, with the head and neck without feathers, clothed with a black skin, red towards the base. The occiput alone has some white feathers; the

bill and feet are black. It lives in South America, on the borders of ponds and marshes, where it pursues reptiles and fishes. It is called at Cayenne, *Touyouyou*, *Aïaïai* in Paraguay, *Collier Rouge*, &c.; and Barrère has confounded it with the American Ostrich, which has caused the latter bird to receive the name *Touyouyou*, or *Touyou*, from Brisson and Buffon. The name *Mycteria* was given by Linnæus, from μυκτης, nose, or proboscis, on account of the large bill.*

Add,

Senegal Jabirù. Mycteria Senegalensis. Lath. Vieill. Gal. 255, from which *C. Ephippirhynca*, of Ruppell, Av. 3, does not seem to differ.

Two small pendant wattles at base of bill; head, neck, and scapulars, black; the last with whitish bases; the remainder of the bird, white. Senegal.†

The Umbres. Scopus, Briss.

Are not distinguished from the storks, but by a compressed bill, the trenchant ridge of which swells out towards the base, and the nostrils are prolonged in a furrow, which runs parallel to the ridge as far as the point, which is a little crooked.

There is but one species known,

* *Ciconia Guianensis.* Brisson—the *Ciconia Mycteria.* Illiger.

† See head and bill, *Lath. Lin. Trans.* v. t. 3, and Birds Pl. Col. lxiv.; when young, ash, white-waved with black; chest, belly, and base of tail, white.

Tufted Umbre. Scopus Umbretta. Enl. 796. Vieill. Gal. 250.

As large as a crow; of the colour of umber, and the male of which has a tufted occiput. It is extended throughout all Africa.*

THE ERODIES. HIANS. Lacep. ANASTOMUS. Illiger.

Have but one character of separation from the storks, which is nearly as important as that of the Jabirus. The two mandibles of the bill unite only at the base and point, leaving in the centre of their edges a wide interval. This interval appears to be partly the effect of detrition, for the fibres of the corneous substance of the bill are visible there, appearing to have been worn down.

These are birds of the East Indies, one of which is whitish, (*Ard. Pondiceriana.* Gm.) Enl. 932. and Vieillot, Gal. 251, and the other brown-grey, (*Ard. Coromandelica.*) Sonnerat. II. 219. Both have the quills of the wings and tail, black. Perhaps the last is only a young one.†

A third, altogether radiated black, (*bec ouvert à lame, A. Lamelliger,* Tem. Col. 236) is remarkable

* Wagler has changed the generic name to *Cepphus*, and has used *Scopus* as the specific designation.

† The *Ardea Coromandeliana*, which is *Anast. Albus*, Vieill. and *Anas Typus*, Temm., is probably the adult, and the *Ard. Pondiceriana*, which is the *Anast. Cinereus* of Vieill, is the Bird of the Year.

for having the stem of each of its feathers terminated by a corneous narrow lamina, which passes the barbs.*

Dromas. Paykull.

Resemble the last much in general shape, and feet; but their bill, compressed, and a little swelled at its under base, has the nostrils oval, and its edges unite very well.

But one species is known, belonging to the shores of the Red Sea and to Senegal.

Abyssinian Erody. Lath. Hist. ix. t. 149. *Dromas Ardeola.* Payk. Mem. de Stockh. 1805. pl. 8.. Pl. Col. 362. Dupont. Ann. de Sci. Nat. tom. ix. pl. xlv. *Erodia Amphilensis.* Salt. Trav. Abyss. Atlas, pl. xxxi.

With white plumage, and a part of the mantle and wings black. First described by Lord Stanley, in Salt's Travels in Abyssinia, but since noticed by others, and by each as a new bird.

Tantalus

Have the feet, nostrils, and bill of the storks; but the back of the bill is rounded, and its point curved towards the bottom, and slightly emarginated on each side. A portion of the head, and sometimes of the

* Found in South Africa and Senegal.

neck, is denuded of feathers. The species are found in India and South America.

American Tantalus. Wood Ibis. Lath. *Tantalus Loculator.* Lin. Enl. 868. Wils. viii. lxvi. 1.

Is as tall as a stork, but more slender. White, with the wing and tail-quills black; bill and feet blackish, as well as the naked skin of the head and neck. It inhabits both Americas, arriving in each country at the rainy season, frequenting stagnant and muddy waters, where it particularly searches for eels. Its gait is slow, and disposition stupid.*

African Tantalus. Egyptian Ibis. Lath. *Tantalus Ibis.* Lin. Enl. 339.

White, slightly shaded with purple on the wings, with a yellow bill, and skin of the face naked and red. This was for a long time considered by naturalists to be the bird so reverenced by the ancient Egyptians under the name of *Ibis;* but recent researches have proved that the Ibis is a much smaller species, of which we shall speak a little farther on. This tantalus is not even commonly found in Egypt. It is brought from Senegal to Europe.†

* The *Ibis Nandapoa*, Vieill. from *Cangui* of Azara, 344. The young of the second year is *T. Loculator*, Wilson, A. O. viii. t. 66, f. 1; when young is *Tantalus Plumicollis*, Spix. Braz. t. 85; and also *Tantalus Pillus*, Gmelin.

† The *Tantalus Rhodinopterus*, Wagler. *Ibis Candida*, Perrault. Hist. Acad. xiii. t. 13. Hasselquist, *Ardea Ibis*, appears to be *Ardea Misata*.

Ceylon Tantalus. White-headed Ibis. Lath. *Tantalus Leucocephalus.* Encyc. Meth. Ornit. pl. 66, fig. 1. Vieill. Gal. 247.

The largest of all, and the one which has the grossest bill. This bill, and the skin of the face, are yellow; the plumage white, with a black cincture on the breast, and the quills black. There are long rose-coloured feathers on the rump, which the bird loses during the rainy season.*

Add—

Tantalus Lacteus. Tem. Col. 352.

A little smaller than the Tantalis Ibis. Nostrils, ovoïd; part of the top of head, and opthalmic region naked; plumage, in general, milk white; wing and tail-quills greenish black. Java. The *Tantalus Cinereus*, Raffles. Lin. Trans. xiii. appears to be the young.

Spoonbills, Platalea. Lin.

Approach the storks in their entire structure; but the bill, from which they derive their name, is long and flat. It is wide throughout, but growing wider and flatter, especially towards the end, in a rounded disk, like that of a spatula. Two slight furrows originate from its base, and extend to the end, without remaining exactly parallel to the edges. The nostrils are oval, and pierced at a short distance from

* First figured by Forster, Ind. Zool., t. 10, called *Jaune rell*, in India.

the origin of each furrow. Their small tongue, reticulated legs, and considerable palmations, their two very small cœca, not very muscular gizzard, and lower larynx without peculiar muscle, are the same as in the storks; but the breadth of the bill deprives it of all its force, and renders it fit only for groping in the mud, or catching small fish, or water insects.

The species of this genus are found in Europe, India, and America, without any difference in the characters.

White Spoonbill. Platalea Leucorodia. Gm. Enl. 405. Naum. Sup. 44, f. 87.

All white, with a tuft upon the occiput; is spread throughout the ancient continent, and nestles in lofty trees. The *Spatule Blanche sans huppe* of Buffon, according to M. Baillon, is only the young. Besides the absence of the tuft, it is distinguished by a black border to the wing-quills.

Roseate Spoonbill. Platalea Aiaia. Enl. 165. Vieillot Gal. 248.

With naked face, and lively rose tints of various shades on the plumage, which grow more intense with age. It is peculiar to South America.

Temminck has indicated, as a new species, the one figured by Sonnerat, Voy. t. 51, 52, under the name of *Platalea Tenuirostris*.

The family of

THE LONGIROSTRES,

Is composed of a number of wading birds, most of which formed the genus *Scolopax* of Linnæus; while others were confounded in his genus *Tringa*, partly contrary to the characteristic attribute of that genus, that of having the thumb too short to touch the ground. Finally, a small number were placed with the plovers in consequence of the absolute want of thumb. All these birds have the same forms, the same habits, and often the same distribution of colours, which renders it very difficult to distinguish them, properly, from each other. They are generally characterized by their slender, long, and weak bill, which permits them only to grope in mud for worms and small insects. The different gradations in the forms of this bill serve for the purpose of subdividing them into genera and sub-genera.

Following the principles of Linnæus, it will be necessary to re-unite the majority of these birds under his great genus of

SCOLOPAX,

Which we shall divide as follows, according to the gradations in the form of the bill.

THE IBIS. (IBIS, Cuv.)

Which we separate from the tantalus of Gmelin, be-

cause their bill, though similarly arched, is much weaker, and not emarginated at the point; and the nostrils, pierced towards the back of the base, are each of them prolonged in a furrow, which extends to the end. This bill is, moreover, tolerably thick, almost square at the base, and there is always some part of the head, or even of the neck, denuded of feathers. The external toes are very clearly palmated at the base, and the thumb is sufficiently long to rest upon the ground.

There are some which have the legs short and reticulated. These are the most robust, and have the grossest bill.

The Sacred Ibis. Ibis Religiosa. Cuv. *Abou-Hannès.* Bruce. It. pl. 35. *Tantalus Æthiopicus.* Lath. The adult, Cuv. Recherches sur les Ossemens Fossils, tom. 1.; and the young, Savigny, Descrip. de l'Egypte, Hist. Nat. des Ois. pl. 7.

Is the most celebrated species. This bird was brought up in the temples of ancient Egypt with a degree of respect bordering on adoration. It was carefully embalmed after its death. These honours, say some, were paid it because it was habituated to devour serpents, which have become dangerous to the country; according to others, because there was some relation between its plumage and the phases of the moon. Lastly, some were of opinion that its appearance announced the annual increase of the

Nile. For a long time it was believed that this ibis of the Egyptians was the tantalus of Africa. At present, it is known that it belongs to the genus of which we are treating. It is as large as a hen, with white plumage, except the end of the wing-quills, which are black. The last wing-coverts have elongated and slender barbs, of a black colour, with violet reflexions, and thus cover the end of the wings and tail. The bill and feet are black, as well as all the naked part of the head and neck. In the young subject, however, this part is covered, at least on its upper face, with small blackish plumes. The species is found throughout the whole extent of Africa.*

There is at the Moluccas a species approximating to this, with a longer bill, wing-coverts less slender, and partly varied with white. The feathers of the upper part of the breast are long and pointed. (*Ibix Molucca*, Cuv.); and another in Bengal, with ash-coloured coverts, not very slender. (*Ibis Bengala*, Cuv.)†

Add—

Ibis Papillosa. Tem. Col. 304.

General colour of plumage, dark ash; wings, deep

* For the history of these birds consult Aldrovandus Ornithol. ij. 312; Dr. Pearson, Phil. Trans. 1805, t. 8; Cuvier, Ossem. Fossil, ij. and Ann. Mus. iv. 116; and Savigny, Hist. Nat. et Mytholog. de l'Ibis, 8vo. 1805. Also the *Theban Ibis*, Lath. Hist.

† The last appear to be *Ibis Maccà* of Wagler, quoted from Cuvier, and, when young, is certainly (as shewn by Gen. Hardwicke's figures) the *Ibis Melanocephalus* of Latham; and when adult, the *Bare-necked Ibis* of Dr. Latham's History, ix. 158.

blue, with irregular patch of white on the upper coverts; red occipital feathers; cheeks, blue; red legs.

Bald Ibis. Tantalus Calvus. Gm. Enl. 867.

Bill red; head and part of neck bare of feathers; whole crown, red; plumage, generally black; wing-coverts, glossed with green, and the tips with copper. Cape of Good Hope, and other parts of Africa.

The *Ibis Calva*, Vieill., and the *Tantalus Niger* of authors.

Ibis Nudifrons. Spix. 86.

Forehead and face, naked, reddish; nape, glossy-greenish; rest of the body with a slight violet tint; tail short.

The *Curucau Rasc.* Azara Voy. 365. The *Ibis Infuscata*, Licht. Cat. 75. Brazil.

Ibis Oxycercus. Spix. 87.

Tail, long, conical; head-band, whitish; lores and orbits, naked; secondaries, steel-black; black, above, rather shining; beneath, dull. Brazil.

White-necked Ibis. T. Albicollis. Gm. or *Curicaca* of Margr. Enl. 976.

Bill, black; head and neck, rufous white; plumage in general, brown, undulated with grey, and glossed with green. Cayenne.

Cayenne Ibis. T. Cayannensis. Gm. Enl. 820.

Bill, dusky; plumage, in general, black, glossed with green in some lights. Cayenne.

Ibis Plumbeus. Tem. Col. 235.

A white band on the forehead as far as above the eye; rest of plumage, in general, fine plumbeous; tail, wing-quills, and upper coverts, blackish. Paraguay and Brazil.

Black-faced Ibis. Tantalus Melanops. Gm. Lath.

Bill, and face, which is bare of feathers, black; crown of head, fulvous-yellow; back, and scapulars, cinereous; wing-coverts, bluish-ash, margined with brown. New Year's Island. Brazils, and Central Africa.

Ibis Chalcoptera. Vieill. Gal. 246, or *Tant. Hogedash.* Lath.

Eyes, surrounded with a blood-red skin; head, uniform grey; back, and greater wing-coverts, grey brown, bronzed; small coverts, lustrous green, changing into violet; tarsi, and toes, red.

Others of this genus have the legs squarely scaled. Their bill, in general, is more slender.

The Scarlet Ibis. Scol. Rubra. Lin. *Tantalus Ruber.* Gm. Enl. 80 and 81. Wils. viii. lxvi. 2.

Is a bird of all the warm parts of America, remarkable for its fine lively red colour, with the end of the wing-quills black. Its young, covered at first with a blackish down, become ash-coloured, and afterwards whitish, when they commence to fly. It is only at two years of age that the red appears, and it after-

wards acquires increased brilliancy with age. This species does not migrate, and lives in flocks, in marshy places, near the mouths of rivers. It is easily tamed.

The Green Ibis. Vulg. *Green Curlew. Scol. Falcinellus.* Lin. Enl. 819. Naum. 1. Ed. Sup. 28. Savig. Eg. Ois. pl. vii. f. 2.

Body, of a purple brown red, with a deep green mantle. The young have the head and neck pointed with whitish. It is a fine bird, of the South of Europe and North Africa; and, according to all appearances, the species which the ancients called the *Black Ibis.*

Add—

White Ibis. Tant. Albus, and *T. Coco.* Gm. Enl. 915.

Round the eyes and chin, bare, and red; plumage in general, white; ends of the first four quills, greenish-black. Carolina.

Crested Ibis. Tantalus Cristatus. Gm. Enl. 841.

Sides of head, and round the eyes, bare, and pale; head, and part of neck, black; at the back part a tuft of very long feathers, half white, and half black. Madagascar. The *Ibis Leucopygus.* Spix. 88. If, indeed, it be not the young of Ruber.

White-headed Ibis. Tant. Leucocephalus. Lath.

Bill, yellow; fore-part of head covered with a bare

yellow skin; rest of head, neck, back, belly, and secondaries, white; wing-coverts, and quills, black; upper tail-coverts, pink. East Indies.

The Curlews. Numenius. Cuv.

Have the bill arched like the Ibis, but more slender, and round through its entire length. The end of the upper mandible passes the lower, and projects a little beyond it downwards. The toes are palmated between the bases. *Numenius* is derived from *Neomenia* (new moon), on account of the crescented form of the bill.

The Common Curlew. Scol. Arcuata. Enl. 818. Frisch. 224. Naum. 5. f. 5.

As large as a capon; brown, and the edges of all the feathers, whitish; rump, white, and tail radiated with white and brown. It is a tolerably well flavoured game; common along the sea-coasts, and a bird of passage, in the inland region. Its name is derived from its cry. The *Numenius Rufus,* Vieill. Gal. t. 245. Alb. t. 79. Br. Zool. t. 63.

Courlis à Mèches étroites du Cap. Numenius Virgatus.* Cuv. Enl. 198.

Bill and feet, brown; back, with rhomboidal spots; throat, white. The *Madagascar Curlew,* Lath. *Numenius Madagascanensis,* Lath.

* Also the *Courlis à Mèches étroites de l' Inde. N. Lineatus.*

Long-billed Curlew. Numenius Longirostris. Wils. Am. ii. xxiv. 4.

Crown, blackish, with white streaks, no medial line; rump, uniform with the rest; long axillary feathers, rusty; bill very long, much curved. North America. The *Sea Coast Curlew*, of Bartram, the *Num. Cyanopus.* Vieill. and *Num. Arcuata.* B. Lath.

Esquimaux Curlew. Scol. Borealis. Wils. vii. lvi. 1.

Crown, dark-brown, with white medial line; rump, uniform with the rest, long axillary feathers, banded with black and rusty; bill, short, much curved. The *Numenius Hudsonicus* of Latham, the *Sea-side Lesser Curlew* of Bartram.

The Whimbrel. Scol. Phæopus. Lin. Enl. 842. Ed. 307. Frisch. 225. Naum. 10. f. 10.

One-half less than the common curlew, but nearly of the same plumage. *Phæopus*, which means ash-coloured foot, is a name composed by Gessner. The *Phæopus Arcuatus*, Steph.; the *Numenius Hudsonicus*, Lath., and *Scolopax Borealis*, Gm. not Lath. See Edw. t. 307. Pen. Art. Zool. t. 19.

Numenius Tenuirostris. Ch. Bonap.

Slender bill, brown and yellow at its lower base; plumage with brown spots; all the lower parts, white. Egypt.

Numenius Rufus. Vieill. Gal. 245.

Bill and top of head, black; neck, black striped on reddish ground, reddish spots on several parts of plumage, especially on rump. North America.

Numenius Brevirostris. Licht. T. Col. 381.

Crown, blackish, streaked with whitish, no medial line; long axillary feathers, banded with black and rusty; bill, very short, but little curved. America, North and South.

Charles Bonaparte considers this the same as *N. Borealis*, of Latham, but not of Mr. Ord. See Amer. Orn. ij. t.

N.B. The bill in this genus, and in almost all this family, becomes elongated with age.*

The Snipes. Scolopax. Cuv.

Have the bill straight, the furrow of the nostrils prevailing to the point, which is swelled a little externally, to pass the lower mandible, on the middle

* Also have been named the *Luzonian Curlew.* Lath. *Numen. Luzoniensis.* Lath. Son. Ind. t. 84. *N. Atricapillus.* Vieill.

Otaheite Curlew. Num. Tahitiensis. Lath. Otaheite.

White-headed Curlew. Num. Leucocephalus. Lath. Hist. viii. t. Africa. Perhaps *Tantalus Hogedash.* Haselq.

See also the *Chili Curlew.* &c. of Rhela, and the *Derhomai Curlew,* of Abyssinea. Lath. Hist.

Numenius Pygmeus is a Tringa.

of which is a simple furrow; the point is blunt and very sensible. In dying and after death, it assumes a punctated surface. The feet are not radiate. A character peculiar to these birds, is a compressed head and large eyes placed considerably behind, which give them a singularly stupid air, not at all belied by their manners. It is divided into two subgenera; the first, or *Rusticola*. Vieill. woodcocks, with the leg feathered to the tarsus, and the feet short.

See a good memoir on the migration of these birds. Edin. Phil. Jour. 1824.

The Woodcock. Scol. Rusticola. L. Enl. 885. Frisch. 126, 227. Naum. 1st. Ed. I. f. 1.

Its plumage is universally known; varied above with grey, red, and black spots; underneath, grey, with transverse blackish lines. Its distinctive character consists in four broad, transverse, black bands, which succeed each other on the hinder part of the head. The woodcock inhabits lofty mountains in summer, and descends into the woods about October. It goes alone or in pairs, especially in gloomy weather. Seeks worms and insects. It remains but little in the plains during summer.

Little Woodcock. Scol. Minor. Gm. Amer. Zool. II. pl. xix. Vieill. Gal. 242. Wils. vi. xlviii. 2.

Hind head, black, with three yellowish bands; beneath, pale yellowish-rusty. America.

Scol. Sabini. Vig. Lin. Trans. vol. xiv. pl. xxi.

If it be an authenticated species; chestnut, varied with black, but without any white in its plumage; tail-feather, twelve inches.

Common Snipe. Scolopax Gallinago. Enl. 883. Frisch. 229. Naum. 3. f. 3.

Smaller, and with longer bill than the woodcock. Is distinguished by two blackish longitudinal bands on the head; by a neck spotted with brown and fawn-colour; by a blackish mantle, with two longitudinal fawn-coloured bands; by brown wings, waved with grey; by a whitish belly, waved with brownish on the flanks.

It remains in marshes and on the banks of streams and fountains. It rises out of sight, uttering a shrill and piercing cry.

It is found without alteration in all parts of the globe.

The *Gallinago Media* of Stephens; and when pale, the *Fin-mark Snipe. Scol. Gallinaria.* Lath.

Great Snipe. Scol. Major. Gm. Frisch. 228. Naum. 2. f. 2.

Is distinguished from the preceding by a size one-third superior, and because of its grey or fawn-coloured waves above, one smaller, and the brown below larger and more numerous.

The *Scop. Media.* Frisch. See Bewick. Brit. Birds. 67. Shaw Zool. x. t. 8.

Jack Snipe. Scol. Gallinula. Gm. Enl. 884. Frisch. 281. Naum. 4. f. 4.

One-half less than the common snipe, and has only one black band on the head. Bronzed-green reflexions on the mantle; a grey demi-collar on the nape, and the flanks, spotted with brown, like the chest. It remains in our marshes almost for the entire year.

The *Gallinago Minor* of Ray; and *Gallinago Minima*, of Stephens.

All these birds are excellent eating, and very common in our markets in winter.

Scolopax Brehmii. Kaup. Isis. 1823.

Smaller than the common snipes, with which it has been confounded, but with sixteen feathers in the tail. Europe.

Savanna Woodcock. Lath. *Scolapax Paludosa.* Gm. Enl. 895. *Scol. Gallinago.* Wils. vi. xlvii. 2.

Tail rounded of sixteen feathers, all barred with black at the tip, the lateral half as broad as the middle one. North and South America. Perhaps the *Cayenne Snipe, Scop. Cayanensis*, is only this species confounded with the Great Snipe in Temm. first edition.

Scol. Gigantea. Tem. Col. 403.

Larger than the European Woodcock; bill larger and stronger, between four and five inches long; top of head with two broad black streaks and three pale bands. Brazils. Length, fifteen inches.

The *Breviette* of Buffon, *Scol. Pusilla, Dunlin* of the English, is only the collared sea-lark, in its summer plumage.

Saturated Snipe. Lath. H. *Scolopax Saturata.* Horsf. Lin. Trans. xiii. 191. Java. t. f. *Gallinago Saturata.* Steph.

Bill rather long; apex tubercular, a band varied with black and very deep chestnut; beneath, pale. Java. See *Burka Snipe.* Lath.

Scolopax Australis. Lesson.

Larger than the common snipe; bill, much longer. Found in Malouine Islands.

We must distinguish from the other snipes,

Brown Snipe. Scol. Grisea. Gm. Wils. vii. lviii. 1. *Scol. Paikulli.* Wils. Orn. Suec. II. pl. 2. and in summer plumage, *Scol. Noveboracensis.* Lath.

Which differs from the others in being very distinctly semi-palmate between the external toes. It is more ash-coloured in winter, more reddish in summer. The rump is always white, spotted with black. It is also seen in Europe.

It appears that M. Vieillot reserves the name *Scolopax* to this division, at least, if, as I believe, his 241st plate represents this bird; but it is not very exact. Dr. Leach makes of it his genus MACRORAMPHUS.

First figured in Montague, Orn. Dict. Supl. Shaw Zool. xii. t. 9. the summer plumage is the Red-breasted Snipe of Pennant, and *Totanus Noveboracensis.* Sabine. The *Scolopax Leucophæa,* Vieillot. Gal. t. 24. is the same bird.

RHYNCHÆA. CUV.

Birds of Africa and the East Indies, whose two mandibles, nearly equal, are slightly arched at the point, and the furrows of the nostrils prevail as far as the extremity of the upper mandible, which has no single furrow. The toes are not palmated. To the port of the snipes, they unite the most lively colours, and are particularly remarkable for the eye-like spots on the quills of the wings and tail.

Different mixtures of colour are known among them which Gmelin unites as varieties under the name of *Scolopax Capensis,* and which M. Temminck refers to difference of ages.

Cape Snipe. Scolopax Capensis. Gml. Enl. 922.; adult, according to Cuv.; female, Latham.

Length, ten inches; round the eye and a little way down the neck, white; rest of head and neck, rufous; lower part of neck and back, undulated with black and grey; wing-coverts, undulated black and ash-

colour; secondaries and tail, grey and black alternately; white, beneath. Madagascar.

The *Rostratula Capensis*. Vieill. *Scolo. Capensis*. ij. Enl. 881. or *Rhynchæa Variegata*. Vieil. Gal. 240 is the young; and Enl. 270, is the intermediate state. The *Chevalier Vert*. Brisson and Buffon. (*Rallus Bengalensis*. Gm.) Albin. III. 90. is also of this genus, and does not appear to differ from the variety represented, Enl. 922.

N.B. It is only this last mentioned plate which truly represents the bill proper to this little subgenus. *Rallus Bengalensis*, of Latham.

Add a very distinct species of Brazil.

Rhynchæa Hilarea. Val. Bullet. des Sc. de Ferussac. cat. 2.

The Godwits. Limosa. Bechst.

Have the bill straight, sometimes slightly arched towards the top, and still longer than the snipes. The furrow of the nostrils continues to near the extremity, which is a little depressed and blunted, without a single furrow or punctation. The external toes are palmated between their bases. Their shape is more slender, and their legs longer than those of the snipes. They frequent salt marshes and the sea-coast.

Common Godwit. Lath. *Scol. Leucoph*. Lath. and *Laponica*. Gm. The young, Brit. Zool. pl. xiii.

Briss. v. pl. xxiv. f. 2, and the adult, in summer plumage, Enl. 900.

In winter, deep-brown-grey, the feathers edged with whitish; breast, brown-grey; whitish, underneath; rump, white, radiated with brown, &c. In summer red, with brown back; the tail always barred with whitish and blackish.

Gmelin makes the young a variety of the following species, and cites the figure of Brisson, under *Scol. Glottis*, which is a *Totanus*. The adult is his *Scol. Laponica*. The *Limosa Meyeri*. Leisl. and Tem. is this species in winter plumage, and *Lim. Rufa*. the same in summer plumage.

The *Common Godwit* of Pennant, Br. Zool. t. B. In the summer plumage, it is the *Red Godwit*, of Pennant, and the *Red-breasted Snipe*, of Mont., but not of Latham. See Edw. t. 138. The young is Latham's *Common Godwit*. See Meyer. Voy. t. 8.

Jadreka Snipe, Lath. *Scol. Ægocephala* and *Belgica*, Gm. *Limosa Melanura*. Leisler. The winter plumage, Enl. 874. Summer, ib. 916.

In winter, ashen-grey; browner on the back; belly, white; in summer, head, neck, and breast, red; mantle, brown, spotted with red; underneath, striped with brown, red, and white bands; tail, always black, white tipped.

The *Lesser Godwit* of Pennant, in the summer plumage, it is the *Barbary Godwit*, of Shaw, and the

Godwit and *Red Godwit*, of Latham. See Albin. ij. t. 70. Pen. Br. Zool. t. B. B.; and young, Meyer, t. 11. The *Black-tailed Godwit*. *Limosa Ægocephala*. Bonap. Amer. Orn. iij. t. Found in America and Europe.

These two birds are doubly as tall as the woodcock. The changes of their plumage have given rise to several multiplications of species. The last of them, in summer, covers the plains of North Holland. Its cry is very shrill, like that of a she-goat.

Marbled Godwit. *Scol. Fedoa*. Lin. Wils. Am. vii. pl. lvi. 4.

Plumage above, in general, brown, streaked and spotted with rufous-white; vent, nearly white; tail, rufous. Hudson's Bay.

The *American Godwit*. Pen. Edw. t. 137. The *Hudsonia* and *Marbled Godwit* of Latham. *Scolopax Marmorata* and *Hudsonica*, in the winter plumage. *Limicula Marmorata*, Vieill. Gal. 243, is only the female, or the male in summer plumage. See Vieill.

Terek Snipe. *Scol. Terek*, or *Cinerea*. Gm. Guldenst. Nov. Act. Petrop. xix. pl. xix.

Bill bending upwards; from the base and feet, semi-palmated; above, wholly cinereous, middle of each feather, brown; under parts, white, but throat and breast, streaked with ash-colour. Neighbourhood of the Caspian. Seems a link between the snipes and avosets.

Probably *White Avoset*, Penn. *Scolopax Alba*, Lin. *Limosa Candida*, Brisson. Pl. Enl. 873. Edw. t. 139. North America.

They form the genus *Glottis* of Ch. Bonaparte.

THE SANDPIPERS. CALIDRIS. Cuv. TRINGA. Temm.

Have the bill depressed at the end, and the nasal furrow very long, like the godwits; but the bill, in general, is not longer than the head. The toes, slightly bordered, are not palmated between their bases, and the thumb is hardly of sufficient length to touch the ground. Their legs moderately long, and their contracted shape, give them a heavier gait and aspect than the godwits. They are also much smaller.

The Grisled Sandpiper, Lath. *Tringa Grisea*, *Tr. Cinerea*, and *Tr. Canutus*, Gm. Enl. 366. Edw. 276. Wils. vii. lvii. 2.

In its winter plumage, it is ashen above and white underneath; spotted with blackish on the front of the neck and on the breast. In its summer plumage (*Tr. Islandica*, Gm. or *Tr. Rufa*, Wilson, vii. lvii. 5), it has the upper parts spotted with fulvous and blackish, the under parts red. The *Tr. Nævia*, Enl. 365, is an intermediate state; the coverts of the tail are always white, striped with blackish, and its quills are grey. It is nearly the size of a snipe.

The *Ash-coloured Sandpiper*, Penn. Br. Zl. t. 6. f. 1. Edw. t. 276. The *Knot* of Latham. In summer, the *Tringa Ferruginea* of Meyer; and the young, in spring is *Southern Sandpiper*. Lath. *Tr. Australis*, Gmel.

Selninger Sandpiper. Tringa Maritima, Brem. *Tr. Nigricans*, Montag. Lin. Trans. iv. pl. ii. f. 2. Brit. Zool. in fol.

A little smaller than the preceding; grey, with blackish mantle, waved with white on the wings, and with whitish belly. It is more rare in France, but common on the coasts of Holland. It rests only on rocks and stones.

The *Purple Sandpiper*, Walcot, and the young is the *Knot* of Pennant, Br. Zool. t. c. 2. f. 1. *Tr. Striata*, Retz. Found in America. Bonap. Amer. Orn. iij. t.

Add to the European species,

Temminck's Sandpiper. Tr. Temminckii, Leisler Col. 41. 1.

Plumage, above, light ash-colour; shafts, dusky-brown; throat and beneath, white. Germany. The young is *T. Pusilla*. Bechst. Also in America.

Little Sandpiper. Tr. Minuta. Leisl. Naum. 21. F. 50.

Upper parts, ash grey-brown; head, spotted with rusty-yellow; throat, whitish; belly and vent, white. Germany; also in America.

Add to the foreign species,

White-winged Sandpiper. Tr. Leucoptera. Gm. Lath. Syn. III. pl. lxxxii.

Head to below the eyes, hind-neck, and back, brownish-black; chin, throat, rump, and breast, ferrugineous; belly and vent, yellowish. Otaheite.

Tringa Albescens. Tem. Pl. Col. 41. 1.

Above with large black meshes, bordered with red; beneath, clean pale-red; two lateral quills, white. From Oceania.

Tr. Maculosa. Vieill. Dict.

Feathers of the head and neck above, of the top of the back, scapulars, and wing-coverts, brown on the middle, clear-grey on the edges; lower part of back, rump, upper and middle tail-coverts, uniform-brown; beneath, dirty-white, marked with longitudinal brown spots. Antilles and Southern United States.

Tr. Pusilla. Wils. pl. xxxvii. 4.

Bill, shorter than the head, straight; rump, blackish; middle tail-feathers, longest; lateral, equal, dark-cinereous, edged with white; tarsus equal to the bill, eight lines long. North and South America.

Northern Sandpiper. Lath. Hist. n. 54. *Tringa Rufescens.* Vieill. Gal. t. 238. Yarrel. Lin. Trans. xvi. ij. t.

Rather less than the common snipe; feathers, dusky-black, with rufous margins; beneath, buff-white; two middle tail-feathers longest. Found in Louisiana, in

Europe, one in England, another in France, at the same time.*

THE SANDERLINGS. ARENARIA. Bechst.

Resemble the sandpipers in all points except this, that, like the plovers, they are entirely destitute of thumb.

The species known, (*Charadrius Calidris.* Gm.) Briss. v. pl. xx. §. 2. Vieill. Gal. 234., is in winter, greyish, above; white, underneath, and on the forehead; with blackish wings, varied with white. Wils. vii. lix. A. In summer, its back is spotted with fawn-colour and black; and the breast has blackish points.

(*Char. Rubidus,*) Wils. vii. lvii. 3.

It has been confounded with the sea-lark, *Tr. Arenaria,* in its winter plumage. It is worthy of remark, that Brisson gives the description of one bird, and the figure of another. The *Calidris Tringoïdes,* Vieill. Gal. 234, appears to be a bad figure of this bird in the summer plumage.

The SEA-LARKS. PELIDNA. Cuv.

Are small sandpipers, with the bill a little larger

* Wagler, in his monograph of this genus, has divided the species into 1. Those with the tarsi shielded, slender, longer than the middle toe; middle claw, toothed, *T. Falcinellus.* 2. Tarsi, middle, shielded; sides, scaly; as long as the middle toe; middle claw entire. *T. Religiosa; T. Macei; T. Rubra; T. Alba;* and 3. Those with the tarsi scaly; as long as the middle toe, and middle claw entire.

than the head; the margin of the feet is insensible.

Purre Sandpiper and *Dunlin*, Lath. (*Tringa Cinclus* et *Alpina.*)

One-third less than the great sandpiper; is like it in winter; ashen above, white beneath, with the breast clouded with grey. (Wils. VII., LVII., 3.) In summer, the plumage above is fulvous, spotted with black. There are small black spots on the front of the neck and breast, and a black patch under the belly. It is then the *Tr. Alpina* of Gm., or *Tr. Cinclus*, B. Enl. 852. *Tr. Cinclus*, L. Enl. 851, is an intermediate state.

Found in all parts of the world. The *Tringa Variabilis*, Meyer, *Numenius Variabilis*, Bechst, *Tringa Ruficollis* of Pallas, and *Scolopax Pusilla*, Gmelin.

Schenz's Sandpiper. Pelidna Cinclus, Var. Say. Tringa Schenzii, Bonap. Amer. Orn. iij. t.

Bill hardly longer than the head, scarcely curved, entirely black; rump, blackish; middle tail-feathers, longest; tarsus, three-quarters of an inch long; both continents.

Pectoral Sandpiper. Pelidna Pectoralis, Say, Lug. Exped. Bonap. Amer. Orn. iij. t.

Bill shorter than the head, compressed, and reddish-yellow at the base; rump, dark; middle tail-feathers, longest; feet, greenish-yellow; tarsus, one inch long. North America and West Indies.

Pygmy Curlew, Lath. *Tringa Platyrhinchus*, Tem. in summer. *Numenius Pusillus*, Buf., and *N. Pygmæus*, Meyer, Naum. Voy. t. 10, f. 22; young is *Num. Pygmeus*, Lath., and *Scolopax Pygmæus*, Gmel. not Lin., and *Jaleinellus Pygmeus*, Steph. Pen. Gen. Birds, Shaw Zool. xii. t. 6.

Bill larger than the head; tips slightly curved, much dilated; rump, black; feet, greenish; tarsus, one inch long. Europe and America.

The COCORLI do not differ from the last but by having a more arched bill.

The species known —

Cape Curlew. Scol. Subarcuata, Gm. *Numenius Africanus*, Lath. Naum. 21, f. 28 and 20, f. 27.

Is in winter blackish above, waved with greyish, and whitish below. In summer the back is spotted with black and fulvous, the wings grey, and the upper part of the body red. It exists every where, but not in any numbers.

This is the *Tringa Subarcuata*, Temm., when young the *Numenius Pygmæus*, Bechst., and in summer the *Red Sandpiper* of Pennant. See Meyer and Wolf, xix. t. 4, f. 1 and 2, adult and young.

Long-legged Sandpiper. Tringa Itimantopus, Ch. Bonap. Amer. Orn. iij. t.

Bill larger than the head, slightly arched; tarsus larger than the bill; rump, white, black banded; middle tail feathers largest. North America.

FALCINELLUS.

The bill is more arched than that of the cocorli, and moreover the thumb is wanting.

M. Vieillot has changed this name to *Erolia*. It has been erroneously denied that these birds want the thumb.

But one species is known (*Scol. Pygmæa*, L.), aboriginal of Africa, but has sometimes been seen in Europe.

See Vieil. Gal. t. 231, *Erolia Variegata*. Not *Scolopax Pygmæa* of Gmelin, which is *Tringa Platyrhyncha*, Tem. According to M. Valencienne, the genus *Falcinellus* is made from a specimen of *Scolopax Arcuata*, with the hind toe destroyed.

MACHETES, CUV.

Are true sandpipers in port and bill, but the palmation between their external toes is nearly as considerable as in totanus, &c.

But one species is known.

Ruff. Sandpiper. *Tringa Pugnax*, Lin. Enl. 305, 306.

A little smaller than a snipe, celebrated for the furious combats in which the males engage in spring for the possession of the females. At this epocha the head is partly covered with red papillæ, the neck furnished with a thick mane of feathers so variously

coloured and arranged, and projecting in such capricious directions that two individuals are never found alike. Even before and after this period, there are so many varieties in the plumage of these birds, that naturalists have formed many imaginary species. The feet are always yellowish, which, with the bill and external semipalmation, may assist in characterizing them. This bird, common in all the north of Europe, comes upon our coasts especially in Spring, but does not remain.

The *Chevalier Varié*, Buff. Espec. IV. Briss. V. pl. XVII., 2. (*Tringa Littorea*, Lin., *Tringa Ochropus*, B., *Littorea*, Gm.) The *Chevalier* (proper), Buff. Espec. II. Brisson V. pl. XVII. fig. 1, cited by Gm. under *Scol. Calidris*. *La Maubèche*, (proper.) Briss. V. pl. XX. fig. 1, *Tringa Calidris*, Gm. and the bird of Frisch. pl. 238,

Are only pugnax in various states of plumage, and a number of other varieties may be made of it in the same way.

According to M. Meyer, the *Tringa Grenovicensis* of Latham, is also a young pugnax.

Tringa Variegata, Temminck, and *T. Gambetta*, Lath. are these birds in their winter plumage. The *Equestrian Sandpiper*, *T. Equestris*, Lath. is the female or young male.

There are in America small birds like the sand-

pipers, with feet semipalmated in front, (HEMIPALMA, Ch. Bonap.)

Semipalmated Sandpiper, *Tringa Semipalmata*, Wils. VII., 63.4. *Tringa Brevirostris*, Spix. xciii.

Bill shorter than the head, straight; wings, black; middle tail-feathers longest, like *Tr. Pusilla* and *T. Minuta*. North America.

Near the Sandpipers should be placed—

EURINORHYNCHUS, Wilson,

Distinguished by a depressed bill, and widened at the end almost like that of the spoonbill, and of which the only species known,

Dwarf Spoonbill, *Platalea Pygmæa*, L. *Eurinorhynchus Griseus*, Wils. Thun. Acad. Suec. 1816, pl. VI.

Is one of the most rare birds existing, for but a single individual is known; grey above, white underneath; scarcely as large as a sea-lark.

PHALAROPUS, Brisson.

Small birds, whose bill, more flatted than that of the sandpipers, has in other respects the same proportions and the same furrows. The toes are edged with very broad membranes, like those of *Fulica*.

M. Vieillot has changed this name into *Crymophylus*.

The species known—

Tringa Lobata, and *Tr. Fulicaria*, L. *Phalar. Fulicarius*, Ch. Bonap.

Has the bill very broad for this family. It is in winter ashen above, and whitish underneath and on the head. There is a black band on the nape. It is then *Tr. Lobata*, Edw. 308. In summer it becomes black, mellowed with fawn colour above, and reddish below. There is at all times a band on the wing, which is blackish. It is then *Phalaropus Rufus*, Bechst. and Meyer. *Tringa Fulicaria*, Lin. Edw. 142, *Crymophilus Rufus*, Vieill. Gal. 270. This bird is rare in Europe.

M. Meyer erroneously confounds this bird, Edw. 308, with *Tringa Hyperborea* and *Tringa Fusca*, which have the bill of totanus, and of which we form the lobipes.

Gmelin has made another confusion in citing this bird as a variety under *Hyperborea*.

It is the *Ph. Platyrhynchus*, Temm. *Ph. Hyperboreus Moss*, Lath., and in moulting, the *Ph. Glacialis*, Gmel. It is also said to be the *Grey*, the *Red*, and the *Plain Phalarope* of Latham. See Wilson A. O. ix. t. 73, f. 4.

STREPSILAS,

Have the legs a little lower, the bill short, and the toes not palmate like the true sandpipers, but the bill is conical, pointed, without depression, com-

pression, or swelling, and the nasal foss does not pass one half of its length. The thumb scarcely touches the ground. The bill, a little stronger and stiffer in proportion than the preceding, assists these birds in turning up stones to seek for worms underneath.

There is one species with a mantle varied with black and red, head and belly white, breast-piece and cheeks black, extended through both continents, (*Tringa Interpres*, L. Enl. 856), and one varied with grey and brown, which probably belongs only to another age (Enl. 340, 857, Vieill. Gal. 237.

M. Vieillot has changed the name STREPSILAS into ARENARIA.*

See also Edw. 141, Naum. Supp. 62, f. 118, Wils. Am. VII., LVII., 2. The *Chevalier Varié*, Enl. 300, which M. Meyer refers to strepsilas, is a pugnax.

The *Strepsilas Collaris*, Tem., and *Morinellus Marinus*, Ray. The *Hebridal Sandpiper*, of Pennant; the *Horsefoot*, or *Sea Dotterel*, of the English.

TOTANUS, Cuv.

Have a slender, round, pointed, but firm bill, the furrow of the nostrils not passing one half its length,

* The word *arenaria* has been used three times as a generic name; once in Botany by Linnæus, and twice as a genus of birds, much to the confusion of science.

and the upper mandible being arched a little towards the point. Their shape is light, and their legs high. The thumb scarcely touches the ground. Their external palmation is very marked. The species are found almost through the entire globe.

Green-shank Snipe. Scol. Glottis, L. Albin. II. 69. Aldrov. Ornith. III. 535. Brit. Zool. pl. c. 1.

As large as a godwit, with large and strong bill; ashen-brown above, and on the sides, with borders of feathers punctated with brown; belly and rump, white; tail narrowly and irregularly striped grey and white; legs green. In summer there are brown spots on the neck and breast; in winter it is white all under the body. It is the largest of the European species.

The *Totanus Fistulans*, Bechst. *Tot. Griseus*, Bechst. *Limacula Glottis*, Leach. *Glottis Chloropus*, Wilson, and the *Cinerious Godwit*, Penn., appear to be varieties of it.

Dusky Snipe. Barge Brune, Buff. Enl. 875. *Scolopax Fusca*, Lin. Frisch. 236.

Slender-shaped, like a godwit; in summer, blackish-brown above, slate coloured underneath, with feathers bordered or pointed at the edges with whitish; rump white, and tail radiated with brown and white; two characters which are found more or less in all the species of totanus; feet reddish-brown. In winter it becomes white on the breast and belly,

almost ash-coloured above, and has the feet red. It is then *Scol. Calidris*, Lin. Enl. 878.

According to M. Meyer, *Scol. Curonica* and *Scol. Cantabrigiensis*, and the *Tr. Atra*, Gm., must be referred to this bird. The first two are young.

This bird appears to be the

Totanus Fuscus, Leisler. *Tot Natans*, Bechst. and the *Tringa Totanus*, Meyer, in summer. *Tringa Fusca*, Falck, and when young the *Scolopax Totanus*, Gmelin, not Linnæus, and *Totanus Maculatus*, Bechst. The *Barker* of Albin, the *Courland Snipe*, *Cambridge Godwit*, *Black Head*, *Dusky*, and *Spotted Snipe* of Latham.

Red-shank, or *Gambet Snipe*. *Tringa Gambetta*, L. Enl. 845. Frisch. 240. Naum. 9, f. 9.

In summer brown above, with black spots, and some few white ones on the edges of the feathers; white underneath, with brown spots, especially on the neck and breast; red legs; numerous brown and white stripes on the tail. In winter the spots are almost effaced, and the mantle is of an almost uniform grey-brown. It is then as represented in the fig. Enl. 827. Its size is one-fourth less than the last.

The *Totanus Calidris*, Bechst. *Totanus Nævius*, Brisson; and, when young, *Tringa Striata*, Gmel. not Linnæus. See Penn. Br. Zool. t. 65, and 90, and Albin. Birds, iij. t. 68.

Stagnatile Snipe. *Chevalier à longs pieds*, Bonelli. *Totanus Stagnatilis*, Bechst.

A little smaller than the gambet, but with longer

and more slender legs. In summer its back is brown, with irregular black spots; its belly is white, and it has brown spots under the neck and breast. In winter the mantle becomes uniform grey, and the under part of the body white. The stripes of the tail are irregular, and parallel to the edges.

See Pl. Enl. t. 876; the *Green-legged Sandpiper*, probably the *Long-legged Sandpiper* of Montague, Orn. Dict. Supt. *Totanus Grallatorius*, Stephens.

Green Sandpiper. Tringa Ochropus, L. Enl. 843.

Bronzed, blackish above, the edge of the feathers pointed with whitish; white beneath, spotted with grey in front of neck and on sides. Three black bands only on the lower part of the tail; feet greenish, still smaller than the preceding two. It is a good game, common on the banks of our streams, though it lives there rather in a solitary manner.

The *Totanus Ochropus*, Temm.

Wood Sandpiper. Tringa Glareola, Gm.

Differs particularly from the last in having seven or eight blackish stripes on the entire length of the tail. The pale spots of the back are broader. In winter, the small spots of the neck and breast almost entirely disappear.

Common Sandpiper, Lath. *Tringa Hypoleucos*, L. Enl. 850. *Tot. Macularius*, Wils. VII., LIX. 1. 2.

The smallest of all; about the size of the sea lark; bronzed, greenish-brown above, with transverse fulvous and black marks on the wing; in front and underneath, white; rump and middle tail-quills of the colour of the back, the lateral ones alone radiated with white and black as in the other species. The young has a clear fulvous border to the feathers of the back, and to the small wing-coverts. This bird lives like the green sandpiper, and in the same places.

Among the foreign totani we must particularly remark the North American species, with gross bill, and semipalmate feet. (*Scolopax Semipalmata*, L.) Encyc. Meth. pl. d'Orn. pl. LXXI., f. 1, Wils. VII., LVI., 3.

Almost as large as our first species, with shorter and grosser bill; plumage, grey-brown above, whitish underneath, spotted with brownish on the neck and chest; toes well bordered and palmations, almost equal and considerable. *Totanus Semipalmatus*, Temm. M. Ch. Bonaparte forms on this character his sub-genus *Catoptrophorus*.

Add to the common totani—

Tot. Speculiferus, Cuv.

Very like *Semipalmatus*, but higher on the limbs, with longer bill, and feet of the usual character.

Stone Snipe. Scolopax Vociferus, Wils. VII. t. 57, 5, or *Tot. Melanoleucos*, Ord. ib.

Ashy-brown, spotted with black and white; rump, white; tail, white, brown-barred; feet, yellow; bill, black, slightly recurved. The *Telltale Snipe* of Wilson. North and South America.

Yellow-shanked Snipe. T. Flavipes, Wils. LVIII. 4.

Ashy-brown, spotted with black and white; rump, white; tail, white, brown barred; feet, yellow; bill, black straight. Allied to *Tot. Stagnatilis.*

Totanus Solitarius. Tot. Glareolus, Wils. VII., LVIII., 3. The *Totanus Chloropygus*, Vieill.

Olive-brown, white spotted; tail, white, with regular broad blackish bands; quills and shafts, quite black. North America.

Bartram's Sandpiper. Tot. Bartramius, Tem. *Tringa Bartramia*, Wills. VII. LIX. 2.

Rump, black; tail, very long, tapering, reaching much beyond the wings; bill very short. America.

We may also refer to the *Booted Sandpiper. Totanus Caligatus*, Licht., the *Petit Chortito brun*, Azara, n. 400, which is like *Tot. Glareola*, Tem., but rump black, and tarsi booted; of South America. Also, *Totanus Variegatus*, Vieil. Gal. t. 339. Also examine *Scolopax Candidus*, Lath. Edw. t. 139, Hudson's Bay, and *Scolopax Australia*, Lath. N. Holland; *Scol. Nutans*, Labrador; *S. Nigra* and *S. Incana*, Lath., and *Totanus Acuminatus*; *Tot. Tenuirostris*, *T. Damascensis*, *T. Javanicus*, and *T Affinis*, Dr. Horsfield, Lin. Trans. from Java, and *Tringa Oakuensis*, Bloxam, Voy. 251, but

none of them have been figured; and consult the genus *Ereunetes* of Illiger, containing *T. Petrificatus.**

Lobipes, Cuv.

Which we think we ought to separate from *Phalaropus;* for notwithstanding the similarity of the feet, the first are distinguished by the bill, which is that of totanus.

M. Vieillot, from an affectation of changing, has left to this genus the name *Phalaropus.*

Hyperborean Phalarope. Tringa Hyperborea, L. Enl. 766, of which *Tringa Fusca,* Edw. 46, is probably the female or the young.

This little bird is grey above, white underneath, tinted with red on the scapulars, and round its white throat is a broad red gorget.

The *Red Phalarope,* Pennant, and the *Coot-footed Tringa,* Edwards; the *Phalaropus Wellcamsii,* Ha-

* N.B. This genus totanus, mixed by Buffon with many varieties of pugnax, has been dispersed by Linnæus through his genera *Scolopax* and *Tringa,* without any motive. Buffon has placed two species of it among the godwits. This confusion is not yet entirely cleared up, because I have not been able to observe all the foreign species. It is easy, however, after the determinations I have given, to see the propriety of my discarding the genus Atites of Illiger.

We may also remark, that the most exact descriptions will not serve to distinguish the species as long as totanus is not separated from limosa and calidris, according to the conformation of bill indicated above. This has prevented me from giving completely the synonimy of Bechstein and Meyer.—Cuv.

worth, and the *Tringa Lobata*, not of Gmelin, but the *Gray Phalarope*, Wilson. *Phalaropus Frenatus*, Vieill. Gal. 271, or *Phalaropus Fimbriatus*, Tem. Col. 270, Wils. Am. IX. Pl. LXIII. f. 3? It is the genus HOLOPODIUS, Ch. Bonap.

The *Phalaropus Wilsonii*, Sabine, Bonap. Amer. Orn. and *Lobopesineanus* of Jardine, and Selby Illust. Orn. t. 16, the *Phalaropus Lobatus* of Ord.

Black-grey; beneath, white; a chestnut patch and black band on each side of the neck. North America.

HIMANTOPUS,

Have the bill round, slender, and pointed, still more than totanus. The furrow of the nostrils occupy but one half of it. What distinguishes them, and gives them their name, is their excessively slender and long legs, destitute of thumbs, and the bones of which are so weak, as to render walking difficult.

In Europe but one species is known; white, with black cap and mantle and wing; red feet. *Long-legged Plover* (*Charadrius Himantopus*,) L. Enl. 878. It is somewhat rare, and its manners are but little known.

Called, also, *Himantopus Albicollis*, Vieill.; *H. Melanopterus*, Tem.; *H. Atropurpureus*, Meyer; *H. Autumnalis*, Leach.; *H. Rufipes*, Bechst.; *Charad. Autumnalis*, Hasselquist.

Himantopus signifies feet in the form of a cone

(on account of their weakness). It is the name of this bird in Pliny.

Long-legged Avoset. Wilson. *Him. Nigricollis.* Vieill. Wils. Am. vii. pl. lv. f. 1., and Vieill. Gal. pl. 229.

Neck white, above; scapulars and wings, black. North and South America.

Vieillot has also indicated, as South American species, *H. Leucurus*, *H. Mexicanus*, and *H. Melanurus*.

We must place here

THE AVOSETS. RECURVIROSTRA, L.

Although their feet, palmated almost to the end of the toes, might almost cause them to be considered as swimming birds. Their elevated tarsi; legs half naked; long, slender, pointed, smooth, and elastic bill; and the mode of life which results from this conformation, tend equally to approximate them to the snipes. What, however, characterises and distinguishes them from all other birds is the strong curve of their bill towards the top. Their legs are much reticulated, and their thumb too short to touch the ground.

Black-necked Avoset. Recurvirostra Avocetta. L. Enl. 353.

of Europe, is white, with the cap and three wing-bands, black, and leaden-coloured feet. It is a handsome bird, slenderly shaped, and frequents the sea-shore

in winter. The American species, the *American Avoset*, Lath. H. *(R. Americana.)* Wils. vii., lxiii. 2. Leach. Zool. Misc. pl. 101, differs only by having a red cap.

There is upon the coasts of the Indian Ocean a third species, altogether white, with the wings all black, and red feet. *(R. Orientalis*, Cuv.) The *Oriental Avocette*, Steph.

M. Vieillot has changed this name into *R. Leucocephala.* Gal. pl. 272.

Red-necked, or *New Holland Avoset. R. Rubricollis*, Tem.; *Novæ Hollandiæ*, Steph.

Head, and part of neck, deep red; quills, and upper coverts, black; rest of plumage, white. From South Asia and New Holland.

The family of THE MACRODACTYLI

Have the toes of the feet very long, and adapted for walking through the grass of marshes, or even for swimming; especially in the numerous species which have them well edged. Nevertheless, there are no membranes between the bases of their toes, not even between the external ones. The bill, more or less compressed on the sides, is elongated or shortened according to the species, without ever becoming so slender or weak as that of the preceding family. The body of these birds is also singularly compressed, a conformation which is produced by the narrowness of the sternum. Their wings are mode-

rate, or short, and their flight feeble. They all have a thumb tolerably long.

They have been divided into two tribes, according as their wings are armed or not; but there are exceptions to this character.

The Jacanas. Briss. Parra. Lin.

Are greatly distinguished from the other grallæ, by feet with four very long toes, separated to their very root, and the claws of which, especially that of the thumb, are also very long and pointed, which has gained for them, in French, the somewhat ludicrous denomination of surgeons *(Chirurgien)*. Their bill is something like that of the lapwings, in its moderate length, and slight swelling at the end, and the wing is armed with a spur. They are clamorous and quarrelsome birds, living in the marshes in hot climates, walking easily along the deep grass, by means of their long toes.

Jacana, or *Jahana*, is, in Brazil, properly, the name of the water-hens. The jacanas are there named *aquapuazos*, because they walk through the aquatic herbs called *aquape* (D'Az.). Perhaps it is from the error of a transcriber, that one of them is named *aquapeccaca*, in Marcgrave. Parra is the Latin name of an unknown bird.

America supports some species, which have a naked membrane on the base of the bill, inclining, and covering a portion of the forehead.

Chestnut Jacana. Parra Jacana. L. Enl. 322.

Black, with a red mantle; the primaries of the wings green, and fleshy wattles under the bill. It is the most common in all the warm parts of America. It has very sharp spines at the bend of the wing.

The *J. Varia*, (*P. Variabilis*) Enl. 846, is only the young of the common species. The *P. Brasiliensis*, and *P. Nigra*, exist only on the somewhat equivocal authority of Marcgrave. The *P. Viridis*, which also rests only in the description of Marcgrave, appears probably to be a *Porphyrio*, or Purple-hen. The *P. Africanus* of Latham hardly differs. *P. Chavaria*, is a *Palamedea*.

There are also some in Asia.

Indian Jacana. Parra Ænea. P. Melanchloris Vieill. Gal. 264. *Parra Superciliosa.* Horsf. Java.

Body, black, changing into blue and violet; mantle, bronzed green; rump and tail, sanguine red; anterior wing-quills, green; a white stripe behind the eye. The spines are blunt and small.

Most probably the same as the *Parra Indica*, Lath.

Some have also been discovered in the East, that want the membrane, and which are otherwise remarkable for singularities in the proportions of their quills.

Chinese Jacana. Parra Chinensis. Encyc. Mat. Orn. pl. 61. f. 1. Vieill. Gal. 265.

Brown; head, throat, front of neck, and wing-coverts, white; hind-neck, furnished with silken plumes of a golden-yellow; a small stem appended to the end of some of the wing-quills; four of the tail-quills black, and longer than the body.

The *Luzonian Parra.* Lath. *Parra Luzoniensis, Chirurgien de Luçon* of Sonnerat, is only the young. Beside some differences of colour, it has not got the long tail.

To these may be added,

Parra Africana, Var. Licht. Humb. Cat. *Parra Mutica* n.?

Wings, armless; forehead not carunculated; head, greenish-black, with a black vertical line nearly to the back; bill, black tipt; hind claw, two inches long. Length, ten and a-half inches. Africa.

There are also some in the East, which have a crest, and no spur to the wings.

P. Gallinacea. Tem. 464.

Head, neck, breast, and belly, deep-green; mantle, cupreous; rump, and tail, reddish-purple.

THE KAMICHI, OR SCREAMERS. (PALAMEDEA, L.)

Resemble the Jacanas in many respects, but are much larger. They resemble them in the two strong

spurs on each wing; in the long toes, and strong claws, especially that of the thumb, which is long and straight, as in the larks; but their bill, not much cleft, is but slightly compressed, not swelled, and the upper mandible is slightly arched. Their legs are reticulated.

The species known, the *Horned Screamer*, Lath. (*Palamedea Cornuta*, L.) Enl. 451. Vieill. Gal. 261. *Anhima*, at Brazil. *Camouche*, at Cayenne, &c.

Is larger than the goose; blackish, with a red spot on the shoulder, and the summit of the head bears a curious ornament, a long corneous stem, slender and mobile. The toes are not palmate. This bird sojourns in the inundated places of South America. Its voice is very strong, and it utters cries, heard at a great distance. They live in pairs, with much fidelity. It has been asserted that they hunt reptiles; but, although their stomach is not very muscular, they live on little but herbs and aquatic seeds. See Bajon Mem. de Cayenne, II. 384.

A distinct genus has been made of

The CHAIA of Paraguay, D'Az. CHAIMA, Illig.

Faithful Jacana, Lath. *Parra Chavaria*, L. Col. 219. Vieill. Gal. 267.

Which has no horn on the vertex; and the occiput is adorned with a circle of feathers, capable of being

raised. The head and top of neck only are clothed with down, and it has a black collar. The rest of the plumage is lead-coloured and blackish, with a white spot at the back of the wing, and another on the base of some of the large quills. There is a palmation sufficiently marked between the external toes. It especially eats aquatic plants; and the Indians of Carthagena bring up some individuals in their flocks of geese and hens, because this bird is said to be very courageous, and capable even of repelling the vulture. A singular phenomenon is, that the skin, even that of the legs, is swelled by the interposition of the air between it and the flesh, and the flesh cracks under the finger.*

Though they have scarcely any naked part on the leg, we yet think that this is the proper place for

MEGAPODIUS,

A genus lately discovered in New Guinea, with vaulted and slightly compressed bill, nearly half of which is occupied by the membranous nostrils. The legs are strong, tolerably long, and scaled. The thumb and toes are long, and terminated by large claws, somewhat flat. The tail is short; there is a naked space round the eye, and a small tubercle on the carpus, which is the first slight vestige of the

* M. Vieillot has changed the generic name to *Ophistolophus;* it has been figured by Pr. Maximilian, in his Abbildungen; and is the *Chaja Screamer* of Lath., from the *Chaja* of Azara, and the *Ophistolophus Fidelis,* Vieil.

spur of the Kamichis. The palmation is very short between the external toes, and a little larger between the internal. These birds lay eggs of a bulk disproportioned to the size of their bodies.

There is one species tufted almost like the Chavaria.

Megap. Duperrey. Less. and Gar. Voy. de Duperrey. Zool. pl. 37.

Head, crested; neck, chest, and belly, grey, or slate-colour; rump, reddish-black; crest, wings, and back, rufous; bill and feet, whitish. In New Guinea, called *Mangoipe.* This species is called *Tavon* at Manilla; it is the size of a partridge, but it lays eggs as big as a goose. This observation is due to *M. Dussumier.*

These birds have been only very lately brought to Europe, but they have been known, for more than a century, by the notice of *Pigafetta*, and of *Gemelli Carreri*, in 1719. See Lesson, Manuel, 220.

Two others have no tuft.

Megapodius Freycinet. Quoy. and Gaim. 28, and Sol. 220.

Skin of the neck, brownish, and covered here and there with some small bunches of short feathers; upper parts, black-brown; lighter on the belly and under the wings. Island of Guebé, and Banda; called *Blevine Mankero*, and *Manloague.*

Megapodius La Perouse. Quoy and Gaim. 27. Atlas Zool. du Voy.

Feathers of hind-head, clear brown; those of back and wings, brown, mixed with red towards the point;

last colour clearer on breast, belly, vent, and rump. Archipelago of the Mariannas. Called *Sassegniat.*

A fourth, smaller, appears to have no tail.

L'Alectelie de Durville. Voy. du Dup. pl. 38.

Head, body, back, and belly, sooty-brown; throat, ash; wings, rounded, brown, intermixed with foxy lines; bill, and feet, grey-white. Island of Guebé.

Megap. à Pieds Rouges. Col. 411.

Near the size of the former; throat and cheeks, partly naked; head and nape, with small brown feathers; like M. Duperrey's species, but the feet are red. Amboina. Discovered by Professor Reinwardt.

A large species has been stated to exist in the Celebes, known to the natives by the name of *Maleo.*

In the tribe, whose wings are not armed, Linnæus comprehends, under the genus *fulica*, those whose bill is prolonged into a kind of scutcheon or shield, which covers the forehead; and under the genus *rallus*, those which have not this peculiarity.

The Rails. Rallus, L.

Which in other respects have a great inter-resemblance, but differ much in the proportions of the bill.

Among the species whose bill is longest, (Rallus Bechst.) we reckon

Water Rail. Rallus Aquaticus. L. Enl. 749. Naum. 20, f. 41.

Fulvous brown, spotted with blackish above; bluish-ash underneath; sides, barred with white and black. Common on our streams and ponds, where it swims very well, and runs lightly over the leaves of aquatic plants, subsisting on small shrimps. Its flesh derives a peculiar flavour from the marshes.

The *Velvet Runner* of Willoughby, the *Water Rail*, *Bill Cock*, or *Brook Ouzel*, of Pennant, and the *Scolopax Obscura*, Gmelin, Reisit. 17; the sides of the young are not banded.

There is at the Cape a species or variety,

Blue-necked Rail. Lath. *Rallus Cœrulescens.* Cuv.,

Which merely has the white and black stripes of the abdomen more extended.

Virginian Rail. Rallus Virginianus. Edw. 279. Wils. lxii. 1.

Black, skirted with brown; beneath, rufous; throat, white; wing-covert, chestnut; first primaries, quite black. Length, eleven inches. North America. The *Fresh Water Mud-hen* of the Americans. *Rallus Limicola*, Vieill.; and *R. Pennsylvanius*, Brisson.

Clapper Rail. Rallus Crepitans. Gmel. Wils. ib. 2.

Black, skirted with brown; beneath, rufous; throat, white; wing-coverts, chestnut; first primaries, edged externally with rusty. Length, eleven inches. North America.

Long-billed Rail. Rallus Longirostris. En. 849.

Above, faint ash-colour; chin, nearly white; ferrugineous white underneath. Cayenne.

Variegated Gallinule. Lath. *Rallus Variegatus.* Enl. 775.

Head, neck, and all above, variegated black and white; Beneath, same, but irregularly. Cayenne.

Philippine Rail. Lath. *Rallus Philippensis.* Enl. 774.

Feathers, above, dusky, edged with rufous-grey; under parts barred, grey and brown; and almost white on belly. Philippine Islands.

Banded Rail. Lath. *Rallus Torquatus.* Lin.

Plumage, above, olive-brown; chestnut-band above the breast. Philippines.

Striated Rail. Rallus Striatus. Lin. *R. Philippensis.* Var. B. Lath.

Crown of head, dusky and chestnut, mixed; back, and scapulars, dusky brown, with whitish spots; transverse white streaks on wings; quills, deep brown, barred with rufous-white on the outer, and white on the inner webs. Philippine Isles. Brisson v. t. 14, f. 2.

Cayenne Gallinule, Lath. *Fulica Cayannensis.* Enl. 352.

A true rail. Chin, sides of head, and part of fore neck, greyish-white; head, rest of neck, abdomen, and thighs, dusky grey-brown; back and wing-coverts,

dull-olive. Guiana and Cayenne. The *Rallus Maximus*, Vieill. *Gallinula Cayanensis*, Lath. not Tem.

Gallinula Gigas. Spix. xcix.

Very large; olive; head, beneath, and chest, lead-colour; back of neck, chestnut; upper part of belly and sides, pale reddish; tail, larger than the wings. Brazils. Not *Rallus Gigas*, Licht. which is *Ardea Scolopacea*, Lin.

G. Sarracura. Id. xcviii.

Large; above, olive; beneath, entirely lead colour; neck above, chestnut; occiput, reddish-brown; throat, slightly white; bill, green; quills, red-brown. Brazils.

G. Mangle. Id. xcvii.

Smaller; above, olive; beneath, ferrugineous-red; neck beneath, red; above, olive lead-colour; head, olive.

G. Ruficeps. Id. xcvi.

Larger; above, olive; beneath, ferrugineous; occiput, reddish; neck, lead-coloured; throat, white; thighs, ash; belly and tail, black; ocella and quills, chestnut. Brazils. Like *G. Cayanensis*,

Gallinula Cœsia. Spix. t. 95.

Small; spotless; above, olive; head and beneath, lead-colour; body, compressed; throat, scaly-white; bill, sharp, tipt. Brazils.

Brown Rail. Rallus Fuscus. Enl. 773.

Bill begins to be shorter; brown, above; beneath, reddish-brown; abdomen, greyish. Philippines and Java.

Rallus Giganteus. Ch. Bonap.

Blackish, glossed with green; feathers, white streaked in the middle; rump-quills and tail-feathers, spotless, first quills, filiform. Length, twenty-five inches. South America.

Chericote Gallinule, Lath. H. *R. Chericote,* Vieill. *R. Nigricans,* Var. Vieill.; the *Chericote.* Azara. n.

Head and neck, lead-coloured; back and wings, olive-brown; quills, reddish; lower wing-coverts, reddish-black; chest and belly, banded, pale-red; rump, vent, tail, and thighs, black. Length, fourteen inches.

R. Melanurus, Bonap. *R. Nigricans,* Id.

Slate-brown; neck above, brown; back and wings, olive-brown; quills, reddish; lower wing-coverts, red, black banded; rump, vent, and tail, black. Length, fourteen inches. South America.

Cape Rail, Lath. *R. Capensis,* Lin. Brow. Illust. 88

Ferrugineous; beneath, black and white banded. Cape of Good Hope.

Gular Rail, Lath. H. *R. Gularis,* Horsf.

Black-brown, white waved; top of head, ferrugineous; throat, white; chest, deep lead-colour; belly, white banded. Java. Length, twelve inches.

Four-streaked Rail, Lath. H. *R. Quadristriatus,* Horsf.

Above, brown mixed with yellow; beneath, pale; throat, whitish; head, black, with two white streaks

on each side. Java. Length, eight inches and a half.

Ceylon Rail, Lath. *R. Ceylonicus*, Gmel. Brown Illust. t. 37.

Ferrugineous; beneath, pale-red, brown clouded; head, blackish; bill and feet, red. Ceylon.

There have also been indicated,

Red-breasted Rail, *R. Ferrugineus*. *Pacific Rail*, *R. Pacificus*, Gmel. Otaheite. *Tabuan Rail*, *R. Tabuensis*. *Troglodite Rail*, *R. Australis*, and *R. Troglodytes*. *Sandwich Rail*, *R. Sandwicensis*, Gmel. *Otaheite Rail*, *R. Taitiensis*, and *Dusky Rail*, *R. Obscurus*, Gm. from the Islands of the Pacific; but they have not been figured. *Rallus Barbaricus* and *R. Dubius*, are both doubtful species.

Other species (CREX. Bechst.) have the bill shorter.

They form the genus *Porzana*, Vieill. *Ortygonometra*, Steph. and *Zapornia*, Leach.

Among them are ranged,

Crake Gallinule, Lath. *Rallus Crex*, L. Enl. 750. Frisch. 212. B. Naum. 5. f. 5.

Fulvous-brown, spotted with blackish above; greyish, underneath; sides, striped with blackish; red wings. It lives and nestles in the fields, running through the grass with much quickness. Its Latin name, *crex*, is the expression of its cry. It is called by the French, king of quails, because it arrives and

departs with them, and lives solitary in the same situations, which has caused the belief that it conducts them. Its food is grains, and also insects and worms. The *Gallinule Crex*, Lath. *Ortygonoetra Crex*, Steph., and *Crex Pratensis*, Bechst., the Land Hen of Willoughby; Draken Hen or Rail of Albin. When young, *Fulica Nœvia*, Gmel. *Small Water Hen*, Albin. t. 74.

Spotted Gallinule, Lath. *Rallus Porzana*, L. Enl. 751. Frisch. 211. Naum. 31. f. 42.

Deep-brown; painted with white; sides striped with whitish. Remains near ponds, and makes its nest with rushes, something in the form of a small boat, which it attaches to some stem of a reed. It swims and dives very well, and does not quit us but in the depth of winter.

This is the *Ortygonoetra Marmorata*, Leach.

We have, moreover, in Europe, two rails with short bills; smaller than the last.

Baillon Crake, Rallus Baillioni, Vieill. Dict.

Top of head and occiput, black and red; brownish-red, above, varied occasionally with black spots; tail, cunieform. The *Gallinula Stellaris*, Tem. Mss.

Dwarf Gallinule, Lath. *R. Pusillus*, Naum. 32. F. 43.

Face, foreneck to middle of breast, blue-grey; chin, white; all the upper parts, black, mixed with fer-

rugineous. Found in England. The *Little Rail*, Montag. not Lath, *Rallus Parvus*. Scopoli. *Zapornia Minuta*, Leach. *Z. Pusilla*, Steph. Shaw. Zool. xii. t. 28.

Among these rails with short bills may be ranged,

Rufous-breasted Gallinule. R. Cayannensis, Gm. 753. t. 368.

Crown, rufous; rest, above, olive-brown; under, as far as the thighs, rufous. Cayenne. *Crex Cayannensis*, Licht.

Minute Gallinule. R. Minutus, Enl. 847.

Above, brown; wing-coverts black, spotted with white; beneath, dusky-yellow. Cayenne.

Jamaica Gallinule. R. Jamaicensis. Vieill.

Head and throat, black; above, rufous-brown, crossed with blackish streaks; foreneck and breast, bluish-ash, thence to vent, barred white and brown. Jamaica.

Yellow-breasted Gallinule, R. Noveboracensis. Vieill. Gal. 266.

Black, skirted with rusty, cross lined with white; beneath, yellowish-rusty; lower wing-coverts, white. Bonap. Amer. Orn. cij. t. 24. *Fulica Noveboracensis*, Gmel. *R. Ruficollis*, Vieill. fig. bad. *Perdix Hudsonica*, Lath. America.

R. Nigrolateralis, Licht.

Not described.

Soree Gallinule, R. Carolinus, Edw. 144. Wils. 48. 2.

Olive-brown, skirted with black; back and wings,

white, streaked; beneath, slate-colour; first primary, white edged externally. Male, throat, black; female, white. Virginia, Georgia, Carolina. *Gallinula Carolina*, Lath. *Porphyrio Irete Hudsonis*, Brisson.

Rusty Gallinula, Gallinula Rubiginosa, Tem. Col. 387. *Crex Rubiginosa*, Gray.

Olive-green; head, neck, and chest, reddish-chestnut; throat and chin, white; bend of wings and belly, grey, white banded; bill, black; legs, yellow. Java. Length, six inches.

To these may be also added,

Crex Lateralis, Licht. *Ypecaha Noiratre*, Azara, n. 376.

Above, olive-brown; sides of neck, chest, and vent, cinnamon; throat, chest, and middle of belly, white; sides, black and white banded. Length, six inches. Tarsus, one inch and one-third. Brazil. Mus. Brit.

Crex Mustelina, Licht. *Ypecaha, brun.* et *plomb.* Azar. n. 374.

Beneath, greyish; vent, variegated; throat, white. Brazil.

Fulica Cayannensis, Lin. *Crex Melampyga*, Lecht. *Ypecaha*, Azar. 367.

Chin, sides of head, and neck, grey; rest of head and beneath, dusky; back, olive; quills, reddish.

Rallus Nigra, Lin. *Crex Nigra*. Licht.

Blackish brown; bill, yellow; feet, red. Africa, Cape of Good Hope. Brit. Mus.

White-chinned Gallinule. Lath. *Gallinula Gularis,* Horsf. *Crex Gularis,* Gray.

Brown; beneath, pale-yellowish, brown waved; wing-coverts and dorsal feathers, pale edged; quills, ashy-brown; throat, white. Java. Length, seventeen inches.

Mournful Gallinule, Lath. *Gallinula Lugubris,* Horsf. *Crex Lugubris,* Gray.

Blackish lead-colour; back and wing-coverts, pale edged; quills, brownish; front edge of wings, white; vent, white banded. Java. Length, twenty inches.

Fasciated Rail, Lath. *Rallus Fasciatus,* Raffles.

Above, chestnut; breast and throat, ferrugineous; abdomen, barred black and white; quills, brown with white bars. Sumatra.

Crex Plumbea, Gray. Mus. Brit.

Brown-black; head and beneath, ash-black; tail beneath, white banded; bill, nearly as long as the head; base, high, much compressed, blackish; under wing-coverts, white, black, and brown banded. Length six inches. Tarsus, one inch and an eighth.

Crex Pulchra, Gray. Mus. Brit.

Black, white spotted; head, neck, and tail, rufous; bill, horn-colour. Length of body, six; of tarsus, one inch and a third.

See also *Dark Rail, Rufous Rail, Rufous-headed Rail, Abyssinian Gallinule, Kookra Gallinule,* and *New Holland Rail,* Latham, Hist.

The genus FULICA,

May be subdivided as follows, according to the form of the bill, and appendages of the feet.

THE WATER HENS, or GALLINULES. GALLINULA, Briss. and Lath.

Have the bill pretty nearly like the land-rail, from which they are distinguished by the plate of the forehead, and by very long toes, provided with a very narrow border.

Common Gallinule. Fulica Chloropus. L. Enl. 877. Frisch. 209, Naum. 29. f. 38.

Deep-brown, above; slate-grey, underneath, with white on the thighs: along the middle of the lower belly, and on the exterior edge of the wing. The young, (*Fulica Fusca.* Gm.) *Poulette d'Eau,* Buff. are clearer, and have the frontal plate larger. *Crex Chloropus,* Licht.

The *Gallinule Ardoisée,* Vieill. Gal. 268, scarcely differs from the common. *F. Nævia,* Albin. II. 73, is only a young corn-crake.

Red-tailed Gallinule, R. Phœnicurus. En. 896.

Forehead, bare, flesh-coloured; plumage above, black; vent and under tail-coverts, ferrugineous-red. Ceylon.

Gallinula Javanica. Horsf.

Is very nearly allied to the last; but has the tail

black; forehead and cheeks, white; sides of belly, black.

Crex Galeata, Lecht. *Gallinula Galeata*, Gray. *Yahana*, n. 379. Azara.

Very like *F. Chloropus*; but differs in length of the toes; length, fourteen inches; middle toes, without the claw, thirty-four lines, being two lines longer than *F. Chloropus*; of the same size, probably the *Gal. Americana*, Leach. *Gal. Fusca*, B. Lath.

Gallinula Obscura, Gray, M. S.

Body above, olive; beneath, black lead-colour; quills, brown; tail, black; throat, white; bill larger than the head; length of bill, one inch and seven-eighths; of body, eight; of tarsus, one and three quarters.

THE SULTANAS, PORPHYRIO. Briss.

Have the bill more high in relation to its length. The toes are very long, almost without any perceptible border, and the frontal plate is considerable, sometimes rounded, and sometimes squared in the upper part. They usually stand on one foot, using the other to carry food to the bill. Their colours are generally beautiful shades of violet, of blue, and of aquamarine. Such is the

Purple Gallinule. Fulica Porphyria. L. Edw. 87.

A fine bird of Africa, naturalized at present in many islands, and on the coasts of the Mediterranean. Its beauty might constitute an ornament of our parks.

Middle toe without the claw, longer than the tarsus. Blue; the frontal plate, bordered behind the eyes; see *Porphyrio Alter*. Aldr. iij. f. 440. Found in the South of Europe, especially Sicily.

The Fulica Maculata, Flavipes, and *Fistulans*, rest originally only on bad figures, given by Gesner, after drawings which had been sent to him; but these are sultanas.

Martinico Gallinule. Fulica Martinica. Vieill. Gal. 267.

Purple; back and tail, green; sides of neck and wings, and lower wing-coverts, blue; vent, white. When young, dusky and purplish varied; beneath, black and white. North America. The *Crex Martinica*, Licht. *Yahana Bleue de Ciel.* Azar. n. 383, *Porphyrio Minor*, Brisson. *Porphyrio Tavoua*, Vieill. *Gallinula Porphyrio*, Wilson, A. O. t. 73. f. 2.

Favourite Gallinule, Fulica Flavirostris, Gm.

Upper parts, deep-blue; sides of head and neck, paler; belly, thighs, and rump, white; quills and tail, brown; bill, yellow. Cayenne. The *Gallinula Flavirostris* of Lath. and Temm.

Green-mantled Porphyrio. Porphyrio Smaragnotus, T. Enl. *Gallinula Porphyrio*, Lath. not Var. B.

Brilliant indigo; cheeks and throat, green; larger wing-coverts, back, and scapulars, deep-green; frontal plate, not produced behind the eyes; the middle toe, without the claw, as long as the tarsus. East and West Coast of Africa.

Black-backed Gallinule. Porphyrio Melanotus.

Back, wing, and tail, shining-black; head, cheeks,

belly, and thighs, black; neck and sides, blue; frontal plate, produced much behind the back of the eyes; middle toe, without the claw, much shorter than the tarsus. When young, bluish-black. New South Wales.

Mealy Porphyrio. *Porphyrio Pulverulentus*, T. Col. 405.

Bluish-grey; back, rump, and secondaries, olive-brown; vent, white; frontal plate produced behind the eyes; bill and feet, red; wings, ashy-blue. South Africa.

India Porphyrio. *Porphyris Smaragdinus*, T. Col. 421. *P. Indicus*, Horsf.

Dark-blue; chin, throat, wings, and thighs, green; vent, white; frontal plate produced beyond the eyes; bill and feet, red. Java.

White Gallinule, *Porphyrio Albus*, L. Phil. Bot. Bay. pl. 273. J. White. p. 238.

Whole of the plumage, pure white; legs, red; claws, brown; sharp spur on the bend of the wing. Islands of the Pacific Ocean, &c. When young, bluish-ash.

See also the *Black-pointed Gallinule*, or *Porphyrio*; and the *New Holland Gallinule*, Lath. Hist., both from New Holland.

Finally,

FULICA, properly so called.

They unite to a short bill and considerable frontal plate, toes very much widened by a festooned border, which makes them excellent swimmers. Accordingly they pass their entire life in marshes and ponds. Their lustrous plumage is not less adapted than their

conformation to this kind of dwelling; and these birds constitute a very marked link between the grallæ and the palmipedes.

We have but one of them,

Fulica Atra, Aterrima, and *Æthiops,* Gm. Enl. 197. Frisch. 208. Naum. 30. f. 40.

Deep slate-colour on the frontal plate, and the edge of the wings white. The plate becomes red in the season of reproduction. It is common wherever there are ponds.

F. Atterima, is the old male: and the young is *F. Æthiops*; sometimes more or less white than *Ful. Leucorix,* Sparm. Mus. Carl. 1. t. 12.

Cinereous Coot, Lath. *Fulica Atra,* Ord. Wilson, A. O. ix. t. 73. f. 1. *F. Floridana,* Bartram. *F. Americana,* Gmel.

Slate-colour; under tail-coverts and outer lining of the wings, white; tail, of fourteen feathers, head, and neck, deep-black; membrane, white. North America.

Crested Gallinule. Fulica Cristata, Gm. Enl. 797. Vieill. Gal. 269.

Forehead and crown, bare, reddish, rising into a knob on the back part; body and wings, greenish-ash colour; beneath, pale-ash. China, India, and Madagascar. Lath. Syn. v. t. 90.

The *Fulica Mexicana,* Lath. *Fulica Armillata,* and *Fulica Leucoptera,* Vieill. are doubtful species.

We shall terminate this view of the grallæ with

three genera, which it is difficult to associate to the others, and which may be considered as separately forming small families.

THE SHEATH-BILLS. CHIONIS, Forster. VAGINALIS, Lath.

Their legs are short, almost as in the gallinæ; tarsi, scaled; their bill gross and conical, and on its base a corneous sheath, which appears capable of being raised upwards or depressed.

But one species is known, belonging to New Holland.

White Sheath-bill. Vag. Chionis. Lath. III. pl. 89. *Chionis Necrophaga*, Vieill. Gal. 258.

Of the size of a partridge, with plumage entirely white. It remains on the sea-coast, where it lives on the dead animals which are cast ashore by the waves.

The *Vaginalis Alba*, Gmel. *Chionis Forsteri*, Steph. *Ch. Novæ Hollandiæ*, Temm. Annal. *Ch. Alba*, Forst. Frey. Voy. t. 35.; the feet slightly fringed like Himantopus.

THE PRATINCOLES. GLAREOLA, Gm.

Their bill is short, conical, arched throughout, pretty deeply cleft, and resembling that of a gallina. Their wings are excessively long and pointed, which, with the tail, frequently forked, reminds us of the appa-

ratus for flight in the swallows, or in the palmipedes of the high seas. Linnæus, in his twelfth edition, has arranged the common species in the genus hirundo. Their legs are of moderate height; the tarsi, scaled; the external toes, a little palmated; and the thumb touches the ground. They fly in flocks, uttering cries, near the banks of waters; worms and aquatic insects constitute their food,

The species of Europe,

Austrian Pratincole. Glareola Austriaca, Gm. En. 882. *Glareola Pratincola*, Leach. Lin. Trans. xiii. pl. xii. Naum. 29. f. 59.

Is brown, above; white, underneath and on the rump; the throat is surrounded with a black circle; the base of the bill and the feet are reddish. It appears to be found in all the northern parts of the ancient world.

The *Glareola Torquata*, Temm. *Glareola Nævia*, Gm. is the young of the common species. See Leach, Lin. Trans. xiii. pl. xii. f. 2.

Australasian Pratincole. Glar. Australis, Leach, loc. cit. pl. xiv. or *Glar. Isabella*, Vieill. Gal. 263.

Plumage above and breast, light rufous; throat and upper tail-coverts, white; belly, bright-chestnut; quills and under wing-coverts, black. Australasia. The *Glar. Grallaria* of Temm.

Oriental Pratincole. Glar. Orientalis, Leach. pl. xiii. f. 1, 2.

Plumage above, brownish ash-colour; beneath, white; broken ring of black round the throat; tail, shorter than the wings, without any lateral threads. Java.

Cream-coloured Pratincole, Glar. Lactea, Tem. Col. 392.

Plumage above and wings, cinereous-white; underneath, white; quills and under wing-coverts, black; tail-feathers, except the outer, marked with a black spot. Bengal.

Our last genus shall be that of the

Flamingos. Phœnicopterus, L.

One of the most extraordinary and most isolated of all the birds. Their legs, of an excessive length, have the three front toes palmated to the end, and the hind one extremely short. The neck, not less long nor less slender than the legs, and the small head support a bill, whose lower mandibles is an oval, bent longitudinally into a semi-cylindrical canal, while the upper one, oblong and flat, is bent crosswise in its centre to join the other exactly. The membranous foss of the nostrils occupies almost the entire side of the part which is behind the transverse bend, and the nostrils themselves are a longitudinal cleft of the lower part of the foss. The edges of the two mandibles are furnished with small and very fine transverse laminæ, which, joined to the fleshy thick-

ness of the tongue, gives to these birds some analogy with the ducks. The flamingos might even be placed among the palmipedes, but for the length of the tarsi and nakedness of the legs. They live on shell-fish, insects, and fishes' eggs, which they get by means of their long neck, and by turning their head round to employ with advantage the crook of their upper bill. They build in the marshes a nest of raised earth, on which they ride astride to hatch their eggs, as their long legs hinder them from adopting any other position.

The common species,

Red Flamingo. Phœnicopterus Ruber, Enl. 68.

Is sometimes more than six feet in height, and, from bill to tail, above four feet long; it is ash-coloured, with brownish shades the first year, and in the second, rose-colour begins to appear on the wings; in the third year, the back is always purple-red, and the wings roseate. The wing-quills are black, the bill yellow, and black at the end, and the feet brown.

This species is extended over the whole ancient continent below 40°. Numerous flocks of it are seen every year on our southern coasts. They sometimes ascend even towards the Rhine.

M. Temminck thinks that the flamingo of America, altogether of a bright-red, Wils. Am. viii. 66, and Catesb. 73, differs in species from that of the old world.

He describes it, under the name of *Ph. Ruber*, Tem., and calls the other *Ph. Antiquorum.* For its bill, see Bul. Soc. Phy. 98, f. 4, 6.

Little Flamingo of America, Geoff. *Phœnic. Minor*, Vieill. Gal. pl. 73.; the young, or *Flam Pygmée*, Temm. Col. 419, the adult.

Red; when young, white; upper wing-coverts, black and red banded; neck, ashy spotted. Senegal. See Geof. Mem. Soc. Philom. 1. 98. f. 1, 3.

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Mus. Zool. Soc

FEMALE OSTRICH.

STRUTHIO CAMELUS. Fem.

London. Published by G.B. Whittaker. March 1829.

SUPPLEMENT ON THE GRALLÆ.

THESE birds are termed *échassiers* by the French naturalists, because many of them, in walking, carry forward the tibia at the same time with the tarsus, which gives them an appearance as if they were mounted on stilts (*échasses*). The illustrious naturalist of Sweden, established as characters of his order grallæ, a bill somewhat cylindrical, tongue entire and fleshy, feet for wading, thighs partly naked, body compressed, and short tail; also, feeding on the animalculæ of marshes, and making their nests most generally on the ground. The general characters of the grallæ, sufficiently vague in their application to the order as it originally stood, have become still more so since the introduction into it of the ostrich, the cassowary, and the bustard, which were formerly classed with the gallinæ. The denomination of shore-birds, *oiseaux de rivage*, by the French, considered as synonimous with grallæ, properly so called, and also our own term "*waders*," have ceased to be applicable to all the genera, since the order has been made to embrace inland birds, not frequenters of humid or inundated situations, and which, moreover, especially subsist on grain or herbage. Among the genera, indeed, included by Linnæus, the agami, and the cariama, are not inhabitants of the water; nor does the French name, borrowed from stilts, appertain to such short-legged birds as the fulicæ proper, &c. All, however, comprehended in the Linnæan arrangement possessed the faculty of flying, which is

denied to the ostrich, and the cassowary; and the peculiar attribute, in the performance of this natural function, of stretching their legs backwards, while the birds of other orders have the habit of folding them under the belly. Considerable variations also exist respecting the form of the bill in these birds; particularly, if with the most recent writers, we include the secretary among them, but which our author, as has been seen, has placed at the end of the accipitres. The exclusion, however, of this bird, as well as of the ostrich, the cassowary, the bustard, the agami, and the cariama, would render the group of the grallæ far more natural. It would not, to be sure, embrace all the long-legged birds, but it would embrace all that are habituated to frequent the neighbourhood of waters.

The birds of this order which build their nests in trees and elevated situations, are monogamous, and nurse their young ones until they are in a state to fly. Those which nestle on the ground are, almost all of them, polygamous; and their little ones, immediately after birth, proceed in search of food of their own accord.

The grallæ, in general, are destitute of some of the most agreeable attributes of terrestrial birds. "None of them," says Buffon, "possess the grace or gaiety of our birds of the field. They do not amuse themselves, and sport together, like them, either on the earth or in the air. They cannot play in the branches like the tenants of the woods, nor please the listening ear by the flexibility and melody of their voices. On the contrary, their harsh and discordant tones, serve only to betray their presence in the marshes, and on the shores, that re-echo to their cries."

The ostrich, the bustard, the agami, and the cariama, always sojourn at a distance from waters. The last feed on serpents; the others on grain and herbage. All the other grallæ are wading birds. Most of them are semi-nocturnal,

or crepusculous; a peculiarity connected with the manner of their subsistence, since it is during twilight and night that the worms issue from their holes in the ground; and that aquatic insects, and fishes, put themselves in motion. It is then that the plover, the lapwing, the woodcock, the snipe, the jacana, seek those humid places which conceal the animalculæ and small worms, which constitute their principal aliment. The bittern, the heron, the stork, and the spoonbills, roam through the marshes, and penetrate into the water, where they can ford without wetting their plumes, to seize the fishes and aquatic reptiles. The curlew, the turnstone, the ibis, the oyster-catcher, the tantalus, frequent the sea-shore, and the banks of rivers, to feed on maritime worms, and the small testacea, and crustacea, which remain in the sand and under the stones. The clamorous cranes call to each other in the heights of air, when the shades of evening begin to brood upon the streams over which they hover, to descend upon their prey.

M. Dumeril has made a very curious observation respecting the articulation of the limbs of a stork, *(ardea ciconia,)* which, as it is applicable to all the birds which possess the faculty of sleeping on one leg, we shall insert here. The lateral ligaments of the knee form the pivot of a kind of hinges. The small head of the fibula, engaged in the groove of the external condyle of the femur, follows the motion of this bone, and draws back the lateral ligament. In fine, the condyles are two portions of a circle or pulley, which terminate in front and behind by radiated extremities, more approximated to the point of attachment of the lateral ligaments. The naturalist just cited compares the manner in which the bones of the leg bend back upon the femur, to the play of the blade and handle of a spring knife. The pulley formed by the condyles is the heel of the blade; the upper attachments of the lateral ligaments are the point or

pivot on which the movement is executed. The two extremities of the pulley are the two planes in a right line; and the elasticity of the ligament produces the same effect as the spring applied against them.

In the first family of the Grallæ, in the "Regne Animal," (the BREVIPENNES,) the genus of the OSTRICH stands foremost. Linnæus, under the denomination of *Struthio*, has united the four terrestrial birds hitherto known, whose wings are unfitted for the purposes of flight, namely, the ostrich, the emu, the cassowary, and the dodo. He has placed them in the order gallinæ, to which, in truth, the form of their bill, the weight of their body, and the nature of their terrestrial habits, give them, by no means, an unfounded claim. It is in the elevation of their limbs alone that the first three approach the grallæ. But there are very essential differences between these birds, which sufficiently justified Brisson in separating them into distinct genera, under the names of *struthio*, *rhea*, *casuarius*, and *raphus*. The first has but two toes in front, and none behind. The second has three toes in front, and a simple callosity instead of thumb. The third has also three toes before, but no callosity behind, and is further distinguished by the corneous casque which it bears upon its head. As to the fourth, which in all probability is not entitled to any rank among existing beings, the toes are said to have been four in number, and the legs considerably shorter than those of the others. We shall speak a little more concerning this supposed bird, hereafter; which, if it ever existed, appears now to be extinct: while the ostrich, of which mention is made in the Old Testament, has subsisted from the earliest times, and always in the same regions, namely, throughout all Africa, from Barbary to the Cape of Good Hope.

The *ostrich* is the most gigantic of all the feathered-race. It attains to seven and eight feet in height, and weighs as

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NEW HOLLAND CASSOWARY OR EMU. *Young*

CASUARIUS NOVÆ HOLLANDIÆ.

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much as eighty pounds. The length of its legs, and of its neck, and certain habits peculiar to it, have caused it to be compared to the camel. Eldemiri, in his "History of Animals," informs us, that the vulgar belief in Arabia is, that the ostrich is the production of a camel and a bird. From such approximations are derived the names which the ostrich has received in various countries. The Persian name of *sutur-morg*, literally signifies *camel-bird;* and it is the same with the *strouthos* of the Greeks, and the *struthio-camelus* of the Latins. We cannot, however, say with Aristotle, that the ostrich is of an equivocal nature, *partim avis, partim quadrupes;* but still we may aver, that in the chain of being, it evidently constitutes the link between the birds and the mammalia. Though decreed, from its bulk, to remain upon the earth, and deprived of that faculty which is the eminent characteristic of its class, it has received, in compensation, a force and rapidity in the race, far surpassing that of all other existing animals.

To the external characters of this bird, given in the text, we shall add a word or two, on its internal structure, and the character of its senses. Here it presents many peculiarities which approximate it to quadrupeds. Its tongue is very short, formed like a horse-shoe, and it makes a projection behind, which some writers have taken for an epiglottis. The sternum, which in other birds has the form of the keel of a vessel, in this resembles a sort of buckler, which is favourable to the movements of the bird, when, to lie down, it is obliged to bend the knee at first, then to lean upon the sternum, and, finally, on all the lower part of the body. In the dilatation between the crop and gizzard, which may be considered as a peculiar stomach, in the voluminous character of the intestines, length of the cœcum, &c., the ostrich, likewise, exhibits a close analogy with the mammalia, especially with those of

the ruminant order. The same analogy is remakable in the organs of locomotion, and in those of generation.

In examining the organs of sense in the ostrich, we may remark, that the nostrils, situated in the upper mandible, not far from the base, have, at each of the two apertures, a cartilaginous protuberance, covered with a very fine membrane. These apertures communicate with the palate by two conduits which conduct into a considerable cleft. It must not be concluded, however, from the somewhat complicated structure of the organ of smell, that the ostrich possesses this sense in any high degree of perfection. On the contrary, it is very imperfect in this bird. This sense serves to the majority of animals, that possess it to any extent, as the means of discerning, and properly distinguishing the food which is suitable and natural to them; but it is so useless to the ostrich, that it will swallow iron, flints, glass, and even copper, in spite of its disagreeable smell; and, according to the report of Vallisneri, one of these birds died in consequence of having devoured an immense quantity of quick-lime.

This fact proves that the sense of taste in the ostrich is not less obtuse and feeble than that of smell. The gallinæ, and other granivora, by no means remarkable for delicacy in the organs of taste, and which swallow plenty of small stones when they are mixed with grains, would suffer themselves to die of hunger, sooner than touch such a corrosive substance as quick-lime. We find, accordingly, no vestiges of nervous papillæ on the tongue of the ostrich.

Although the ears of this bird are conformed in a manner the most calculated to facilitate hearing, their apertures being very large, and not impeded with feathers, yet Leo Africanus affirms, that the ostrich is deprived of the auricular faculty. If it be true, however, that the ostrich be ever deaf, it can only be so during the season of reproduction, which is the case

with the grous. At other times this bird hears very well: it also possesses the visual power in great perfection.

There is, properly speaking, but one species of the ostrich, (*struthio-camelus*); for, as our author observes, the nandu might well stand as a separate genus. It appertains exclusively to the ancient Continent. The sandy deserts of Africa are the places in which it has established its habitual sojourn. It is found from Egypt and Barbary, as far as the Cape of Good Hope, and in the neighbouring islands, and those parts of Asia which border on the African Continent. It is less common in the environs of Goa, than in Arabia; and it exists not beyond the Ganges.

The ostrich is naturally herbivorous; but though vegetable matter constitutes the basis of its food, and though it is often seen pasturing in the south of Africa, it is yet so voracious, and its senses of taste and smell are so obtuse, that it devours animal and mineral substances indiscriminately, until its enormous stomach is completely full. It swallows without any choice, and merely, as it were, to serve for ballast, wood, stones, glass, iron, copper, gold, lime, or, in fact, any other substance, equally hard, indigestible, and deleterious. The powers of digestion in this bird are certainly very great; but their operation is confined to matters of an alimentary character. But copper, far from being converted into nutriment, acts upon its stomach like poison, and nails very frequently pierce its coats and membranes. However, though the ostrich does not, as is vulgarly supposed, digest iron, yet pieces of this metal are found in its stomach, not only worn down, as they would be, by trituration with other hard bodies, but evidently eaten into by some gastric fluid, and exhibiting cracks and flaws which such a fluid could alone produce. M. Cuvier was convinced of this fact by the examination of an individual that died in the French menagerie, in the body of which was found nearly a pound weight of stones, pieces

of iron or copper, and pieces of money, half worn down. This bird prefered barley to every other kind of aliment, and would eat four pounds of it daily, with a pound of bread, and about ten heads of lettuce.

The general opinion in Arabia is that the ostrich does not drink, and according to Eldemiri, before quoted, it even avoids those places where water is to be found. Notwithstanding this, an ostrich in the menagerie above-mentioned, used, in summer, to drink four pints of water daily; and in winter, when it was necessary to keep it shut up, it would drink more than six. But those facts, observed in a state of captivity, should not completely invalidate the assertion of the Arabs. The ostrich, we know, to be an inhabitant of those parched and burning climates, where it rains very seldom, and where water, in general, is very scarce. Moreover, the inverse proportion in the quantity of water, drank by the confined ostrich, in Paris, in summer and winter, proves that the greater or less restriction of the confinement, must be taken into consideration among the causes of the thirst which this bird exhibited.

Notwithstanding the advantages which the ostrich might derive from its strength, in opposition to other animals, it never attacks any. When forced to defend itself, it does so with its bill, the spinous appendages of the wings, and with the feet. In other cases, if the odds be ever so little against it, it has recourse to flight to withdraw itself from danger. Still, however, its hard and thick skin, and its broad sternum, which constitutes a cuirass, are no contemptible defensive arms; and Thevenot has seen it lay a dog prostrate with a single kick. Pliny attributes to these birds the faculty of flinging stones in this way; but this appears somewhat doubtful. In fact, it is not surprising that an animal like the ostrich, endowed with so limited an instinct, should not be

able to derive all the advantages, that it otherwise might do, from the resources with which nature has provided it.

The ostrich has, in general, been made the emblem of stupidity; and it has been said, that when it hides its head, and cannot see the hunter, it believes itself sheltered from his pursuits. Supposing such a fact to have been really observed, might it not have occurred when an ostrich was exhausted from fatigue, and without means of escape, and result from its own knowledge of the peculiar weakness of one of its organs? With the exception of the vertex, which is fortified by a corneous plate, the bones of the ostrich's head are very tender. Many circumstances may produce in the bird the feeling of its weakness in this respect, and it is not at all astonishing that it should particularly seek to guard this part against any shock, either by hiding it in the sand, or elsewhere. If no other proofs of stupidity can be brought against the bird, we doubt if this one can be admissible as conclusive against its intellect. It seems rather to be attributable to the extreme timidity and mild character of the animal.

The voice of the ostrich, which the sacred writers have compared to the bellowing of a bull, and Dr. Brown to a hoarse child crying, is not often heard. According to Sparman, the natives of the different countries about the Cape, are agreed that the cry of the ostrich resembles the roaring of the lion, but that it is less prolonged. Other writers have found a resemblance between this cry and that of the pigeon; but this observation was made only on ostriches in a state of captivity. The voice of the male is a little stronger than that of the female. When those captive ostriches were annoyed, they threatened by hissing like a goose; and also testified their anger by raising and shaking their wings and tail. To the ostriches in the French menagerie, dogs appeared to be peculiarly disagreeable; when the male beheld them, he would strike violently against the boards of the place where he was

shut up, and with as much noise and force as a hammer would have made.

The ostriches are prone to venery, and couple very frequently. Though heavy birds are, in general, polygamous, Thevenot assures us that the ostrich never has more than one female. Sparman also adopts this opinion, but merely on the testimony of the Hottentots, and on the supposition of the necessity of incubation. On the other hand, the Caffres informed Thunberg that the male made its nest with three or four females at once, which laid altogether twenty or thirty eggs, and hatched them in turn. The same fact was similarly reported to our countryman, Mr. Barrow. Levaillant argues in favour of the monogamy of these birds, and states that, in general, he found no more than ten eggs in their nests. Yet this traveller states a fact to which he was an eye-witness, and which, in spite of the interpretation which he gives it, appears to favour an opinion opposite to his own.

A female ostrich, having risen from a nest composed of thirty-eight eggs, of unequal size, besides thirteen others, which were placed a little farther on, each in a small cavity, Levaillant concealed himself at some distance, in a bush, from which, during the day, he beheld four females come successively to the nest, and rise from it in turns. One of these females remained during a quarter of an hour, seated, or rather bent down upon, the eggs, although a new comer had placed herself beside her. This made our naturalist conclude that these birds agreed, as it were, by a mutual understanding, to hatch in couples, or more, at times, especially during the cool and rainy nights, for the advantage of greater warmth. But this supposition accords very little with the system of exclusive monogamy. In fact, the different female ostriches must have been fecundated before their laying, and the account of the traveller proves this, because the young ones were on the point of being excluded. Moreover, Levaillant saw but one

male for three or four females, which renders it highly probable that this male had fecundated them all. On the contrary supposition, that each male had remained faithful to his companion, it is not at all likely that all the eggs would have been thus deposited together, and the most we could expect would be the establishment of separate nests, in the same neighbourhood, as we have seen to be the case with some monogamous birds, whose social instinct is powerful. Such an approximation would be quite sufficient for the purposes of mutual succour and protection of their offspring, to which Levaillant is inclined to attribute the assemblage of which we are speaking. If this traveller, who has often found nests containing ten or a dozen eggs, only occasionally met with some which contained too many eggs to belong to a single female, it is more natural to conclude that nests are formed by a single couple, in districts where the females are not more numerous than the males, and that when the reverse is the case, polygamy obtains among them.

There is one fact, however, regarding which no uncertainty exists, and which, it must be allowed, has more reference to monogamy than to polygamy. The males sit on the eggs as well as the females. The indefatigable naturalist, just cited, has had opportunities of repeatedly verifying this fact, and particularly in the case we have now related, when he beheld the male come to the nest at the decline of day, and was lucky enough to shoot him. Sparman has also seen a male ostrich rise from the nest, and he found in the same nest as many white as black feathers; which announced the successive presence of the male and female.

The season in which the ostriches breed is not very accurately known. Sparman has seen young ones at different epochs, whose size proved that they were born at different times; but on this subject Levaillant has made a very pertinent observation, namely, that though the reproductive season

may be generally fixed to one and the same period, in any species, yet the eggs may be broken, or other accidents may occur, to derange the incubation, and oblige the mother to lay a second, and even a third set of eggs. This sufficiently explains the fact of difference of size and age in the young.

This point, however, is a matter of much less importance than the remark of Levaillant, concerning the eggs which the ostrich places at a little distance from the nest, where they are preserved fresh, to serve for the first nourishment of the young. Bougainville had also made a similar remark, but did not dare to publish it, on account of its singularity. But this fact was much more anciently known in the countries inhabited by the ostrich. The Arabian writer, already quoted, tells us, "It is said that the ostrich divides its eggs into three portions. That it hatches one-third, gives another to its young to eat, and leaves the last portion exposed to the air, that it may rot, and engender worms, which may serve as food for the young when they are excluded."

This account of the exact division of the eggs, of one portion being used for immediate food, and the other left to rot, &c., must of course be attributed to oriental prejudice, and ignorance of natural science. But the recital is sufficient to prove the knowledge of a fact since established, but which probably never takes place, except when a second set of eggs is laid.

In further confirmation of this it may be noticed that the nandu, that bird of America which has most relation with the ostrich, also feeds the young with eggs not hatched. There is a passage of Dobrizoffer, (to whose authority great deference is due, from his known veracity and long residence in Paraguay) to this effect, in his history of the Abipones, an equestrian nation of that country. He says:—"Ova adhuc plena ne in lucem jam editis esca desit a se confracta parvulis alendis impendere solent."

Here, as the reader will perceive, there is no statement of the formal separation of any eggs, but merely of the application of such as have not been incubated to the purposes of food. The same fact is affirmed by Nieremberg in the most positive manner.

Dobrizoffer also makes a remark which is rather in support of the polygamy of these birds, and may serve to explain the inequality in the number of eggs found in the nests of the ostrich. "Struthionis feminæ quotquot vicinæ degunt, ova sua in eodem loco deponent." After this fact, which may also be common to the ostrich, properly so called, we must not be surprised that authors have differed so much respecting the number of its eggs, which Aristotle makes twenty-five, Willoughby fifty, and Elian mounts up to eighty.

Levaillant moreover cites a fact, which may have been the occasion of some errors. When the savages, who are very fond of the eggs of the ostrich, find a nest of them, they carry them off successively with a rake, to prevent the mother from perceiving that they have been touched; and if this thieving be carried on with proper caution, the bird will go on to lay as many as fifty eggs, never beginning her incubation until her number be completed. It is obvious enough, how the information of a native that he had taken forty or fifty eggs from the nest of an ostrich, might mislead a traveller into the supposition of a natural variation in the number of eggs laid by these birds.

These eggs, the ground of which is a dirty-white, marbled with clear yellow, are very large, and might hold a pint of liquid. One of them, laid by a female ostrich in the menagerie of Paris, which was perfect, and as large as the eggs brought from Africa, weighed two pounds fourteen ounces. It was six inches and a half in depth, and its form was that of a common egg.

The ostriches, properly speaking, make no nest; they hollow out a place upon the sand, where they deposit their eggs. Under the torrid zone, the heat of the sun during the day dispenses them from the cares of incubation, which is performed only during the night; but on either side of the tropics, these birds hatch without intermission. Jannequin, who made a voyage to Senegal in 1639, relates, that having put in a chest two ostrich's eggs, enveloped in tow, and having visited them a long time after, he found one broken, and that a young ostrich came out, which lived on minced plants for eight days. But it is impossible to attach any credit to this recital, especially as the same author tells us that he emptied the other egg to bring it home to France, which one would think ought to have been in the same predicament as the first, but was not. Unsuccessful attempts were made to hatch artificially the eggs laid by the ostrich in the French menagerie; but as the male was dead before they had been laid, it is probable that they had not been fecundated.

There are no very certain data from which we can calculate the period of incubation; it appears to last for about six weeks. The young ones walk immediately after their birth. As they find in the torrid zone the degree of heat necessary for them, and suitable food, the mother abandons them directly. But at the Cape, and in other less warm countries, she continues to afford them her assistance in procuring food, &c., as long as it is necessary, and defends them with no small degree of courage.

M. Cuvier, who examined a fœtus ready to issue from the egg, found it altogether covered with feathers of a reddish-grey, spotted with black. It had three black longitudinal lines on the head, and on the back of the neck. This plumage continued during the first year; it afterwards fell, to return no more, on those parts which were to become naked,

such as the head, top of the neck, thighs, flanks, and under the wings.

The vigour of the ostrich is so surprising, that when mounted by two men, it will run faster than one of our best English horses. We have the testimony of Adamson on this subject, who frequently witnessed this sort of spectacle in Senegal. It is even necessary that a man should be habituated by degrees to this exercise, to prevent its producing suffocation. The ostrich in running always keeps its wings raised, although the contexture of the feathers which renders them improper for flight would seem equally to prevent them being of much service in accelerating the course of the bird. But though their assistance in this way, by striking the air, may be futile, yet it is not improbable that they serve as a balance to keep the body in equilibrium, and perhaps may alter its specific gravity.

With such advantages it would seem easy enough for the ostrich to withdraw itself from danger; notwithstanding them, however, snares are not the only means by which man contrives to render himself master of this bird. The inhabitants of a part of Abyssinia, who lived particularly on these birds, and were in ancient times consequently called *Struthophagi*, did not confine themselves to hunting the ostrich with the bow. According to Strabo, they used to cover themselves with the skin of these birds, and passing the right hand into the neck, give it similar motions to those exhibited by the ostrich, while with the other hand they scattered grain about, to attract the ostriches into the snares which had been set for them. Oppian, in the third book of his poem "De Venatine," relates that nets were also employed, into which the ostriches were driven by pursuing them with horses and dogs; but for a long time the Arabs have used horses alone in the chase of the ostrich. This bird, which would escape easily if it always pursued a straight line, on the contrary

describes a circle, which the Arab, who pretends merely to observe, and not pursue, knows how to cut at the opportune moment. This kind of chase is particularly pursued at the period when the ostriches unite in considerable numbers to traverse the desert. Harassed incessantly, they find no opportunity of eating; and when they are extremely fatigued, the hunters rush upon them and knock them down with sticks. This is sooner done, when, in addition to the horses, grey-hounds are employed, properly trained to bar their way. Very frequently they are taken alive in this way.

When the Arabs have killed an ostrich, they open his throat, make a ligature below the hole, and several of them then, taking him by the head and feet, shake and drag him in various directions until are disgorged by the same hole nearly twenty pounds of a substance mingled with blood and fat, of the consistence of coagulated oil, which is called *manteque*, and which is employed in the preparation of dishes, and the cure of different maladies.

Notwithstanding the decided turn of the ostriches for liberty, those which are taken alive are easily tamed, and suffer themselves to be parked up and kept in flocks. They even suffer men to mount them; but the art has not yet been attained of guiding them like a horse. Those, however, that are taken young and brought up at the Cape of Good Hope, show a certain degree of docility. They will suffer themselves to be ridden, and even climb upon the shoulders of those who are willing to try the experiment; and it is not improbable that they might be brought to carry burdens, and otherwise rendered serviceable to man. The farmers of the Cape have tamed them to such a degree that they are left at liberty to go out of the farm, enter it, and seek their food where they will. But the voracity of these animals is much complained of; they will swallow chickens entire, and trample the hens under foot.

Moses interdicted to the Jews the eating of the flesh of the ostrich, as an unclean meat. That of the old ones is hard and ill-flavoured; but that of the young, when they are fat, is eatable. The Romans used to eat of it very commonly, in the time of the emperors; and Heliogabalus, in one of his fantastic whims, had the brains of six hundred of these animals served up at a single repast.

The eggs of the ostrich are of a quality more gross and compact than those of the hen; they are of a sweetish taste, and sooner satiate the appetite. The inhabitants of the Cape make with these eggs a sort of pâtes, or puddings, and omelettes. As their shell is very thick, they can be very well preserved on board ship, where the eggs of hens very soon grow musty. Drinking cups are made with the shell, which hardens with time, and assumes some resemblance to ivory.

When the Nasamones, inhabitants of Lybia, went to war, their defensive arms were made of the skin of the ostrich, which is very thick, and which even at the present day serves to make cuirasses for some of the Arab troops. The Ethiopians sell these skins to the merchants of Alexandria, where Belon saw a great quantity of them, with the feathers on, in the shops. The long white plumes of the tail and wings, have been in request at all times. The Roman soldiers wore them on their helmets, and they still constitute an ornament for the head of the warriors. In Turkey, when the Janissaries existed, a soldier who had signalized himself by some feat of arms, had the privilege of thus decorating his turban. In the kingdom of Congo, these plumes, mixed with those of the peacock, are employed in the fabrication of warlike ensigns. It is well known what a prodigious consumption is made of them in Europe for hats, theatrical dresses, furniture, canopies, funeral ceremonies, &c. Their soft and waving motion renders them in high esteem for female ornaments. Those are more esteemed which have been plucked from the animal

while living, than those which have been taken after death. The first are recognized by the sanguinolent juice which proceeds from the tube when pressed between the fingers; the others are light, dry, and subject to be attacked by worms.

The *Nandu* has been sometimes called the ostrich of Magellan, also the *Cheuque*, *Chroni*, &c. Although our author confines himself, like Linnæus, to giving it the specific denomination of *Struthio Rhea*, yet he admits that the presence of three toes may constitute a character sufficient to form it into a separate genus. As for the other characters, their differences are of no great importance.

The only species of which this genus (if it be allowed to be one) is composed, is much smaller than the African ostrich. As it is only in America that this bird is found, perhaps the appellation of American ostrich would be the most suitable for it, if considered as a species; but if formed into the genus *Nandu*, the denomination of ostrich must be totally abandoned.

The bill of the nandu is short, straight, and depressed; its point is obtuse and unguiculated; the tongue is thick and short; the nostrils on the side and middle of the upper mandible; the feet are long and robust; there is no tail; the wings, unfit for flight, are terminated by a spur, six lines in length.

The females are smaller than the males, and have less black at the origin of the neck.

These birds never penetrate into the woods. Open plains are the only places in which they are found. They usually go in pairs, and sometimes in tolerably numerous flocks, but only in those countries in which they are not hunted. When they are pursued, they run to such a distance and so rapidly that it is extremely difficult to overtake them even with the best horses. The hunters, who sometimes catch them with a kind of collar, formed of three stones as large as the fist, and

attached by cords to a common centre, must be very cautious in avoiding their kicks. The nandus extend their wings behind when they run; and for the purpose of turning, and putting the hunters at fault by their windings, they sometimes open one wing and present it to the wind.

When tranquil, their walk is grave, their neck is raised, and the back rounded. They cut the grass on which they feed. At the epocha of reproduction, that is, in the month of July, the males send forth cries not unlike the lowing of cows. Their nest consists of a wide but not very deep hollow, which is formed naturally in the ground, and into which they sometimes bring a little straw. The eggs, of a yellowish-white and very smooth surface, are more than five inches in diameter, and of equal bigness at both ends. A single nest sometimes contains from sixty-six to eighty of them, which M. d'Azara believes to be the production of many females of the same district; but he adds, as an ascertained fact, that a single individual, said to be the male, hatches the eggs, and takes the charge of conducting and protecting the young. It is also pretended, that the male separates some eggs, which he breaks at the moment in which the young are excluded from the others, that the insects which assemble there may serve for food to the little ones in the first period of their existence. The young nandus, which are brought up in houses, soon become familiar. They enter into the different apartments, and exhibit a great deal of curiosity. They also walk in the streets; and though they often wander into the country, they will also return to the places where they are accustomed to be fed. They will swallow small stones, and even pieces of metal which they happen to meet with. The flesh of the young is tender, and tolerably well flavoured. These birds, which appear never to drink, are good swimmers, and will traverse rivers and lakes, even when they are not pursued.

The inhabitants of Paraguay strip the neck and a part of the breast of the nandus; and having stretched the skin and made it supple, they form it into purses. They send into Spain the wing-quills, the barbs of which are divided, and they are made into ornamental plumes, &c.

The name of the CASSOWARY, as we have seen in the text, is originally Malay. For a long time but a single species was known; and the corneous casque with which the head is surmounted, formed of itself a sufficient character to distinguish it from other terrestrial birds, whose wings were unfit for the purposes of aërial locomotion. But a bird of this description has been found in New Holland, with wings of the same kind, but not furnished with the corneous casque, or fleshy membranes, which, in the cassowary of the East Indies, descend from the head as far as the middle of the neck. As characters common to the two species, we find the substance of the bill very hard, the point of each mandible slightly notched towards its extremity, the feathers resembling hair or manes, the wings shorter, and the legs thicker and shorter than those of the ostrich. The tongue is denticulated, and very short, and the intestines are also shorter in proportion to the general size than in the last mentioned bird. They have not, like it, any intermediate stomach between the crop and gizzard, and the cloaca is not larger than in other birds.

Although many of the facts known with respect to the cassowary of the East Indies may, perhaps, be equally applicable to that of New Holland, yet as they have not been verified by comparison, we shall confine our notices of them to our account of the first species, which we shall designate by the name of EMU, which was originally bestowed upon it by the Portuguese.

This bird is nearly as bulky as the ostrich, but not so tall. The young differs from the adult by the absence of the

casque, and by having the head entirely covered with a naked and whitish skin, and the plumage a clear red, mixed with grey.

The emu is found in the most eastern part of South Asia, in the Moluccas, the islands of Java and Sumatra, and especially in the deep forests of the isle of Ceram. But it is common no where. Although domesticated in Amboyna, it is not aboriginally of that island, but is brought, according to Labillardière, from countries situated more to the east. The senses of smell and taste do not appear to be more delicate in the emu than in the ostrich. Like it, it will swallow every thing which presents itself; but it returns what it has thus taken much more promptly, especially when it is pursued. Its general food consists of fruits and roots. The construction of its tongue does not permit it to eat grain; but it swallows apples, and sometimes passes them entire. It is said to do the same with hen's eggs, of which it is very fond. An emu in the French menagerie used to consume, daily, three pounds and a half of bread, six or seven apples, a large bunch of carrots, and drink almost four pints of water in summer, and a little more in winter. Those brought up in India prefer the bread of Sagou, to all other aliment; and the wild individuals live on the fruits which fall from the trees. In poultry-yards, the emus sometimes swallow little pullets, and even ducks, when the latter do not struggle against them. Their excrements are almost liquid, and they do not void urine separately.

Valentyn compares the voice of the emu to that of a chicken; and adds that, when hunted, or about to fight with domestic animals, it utters a snorting sort of sound, like a rabbit. In the menagerie its cry resembled the syllables *hou-hou*; and sometimes, inflating its throat, lowering its head, and trembling all over, it would produce a noise like

that of a carriage, or of thunder heard at a distance. When annoyed, it would grunt, not unlike a pig.

Though more massive and heavy than the ostrich, the emu, when pursued, runs almost as fast, and seems, according to Valentyn, partly to dance, and partly to fly. Its ordinary walk is erect, and steady, and it keeps the legs considerably apart. Occasionally it is observed to make bounds or leaps; but heavily, and with a deal of noise. To defend itself, and seize or break any thing, it employs its bill with advantage, which is stronger than that of the ostrich. It also strikes very efficiently and dangerously with the foot, both forwards and backwards. The Hindoos regard it as a very stupid bird; yet it is taken with great difficulty, when adult, and dogs themselves can scarcely overtake it in the chase. To be tamed, it must be caught when very young.

The eggs of the emu are, in general, of a greyish white, with a great number of small greenish points. Some, however, are found not varied in this way; and others with paler or deeper tints. Valentyn has seen some of a liver-colour, without any spot. These eggs are more elongated than those of the ostrich, and not equal to them in bulk. In the wild state, the bird lays but three or four, which it deposits in the sand. It is pretended that, after having covered them over, it leaves them to be hatched by the operation of the heat of the climate. But, like the ostrich, the variations of temperature, and the comparative coldness of the nights, must certainly occasionally determine these birds to incubate; for some persons in the train of Valentyn, found, in 1660, an emu seated on three eggs. The flesh of this bird is black, hard, and not succulent.

The first emu seen in Europe was brought over by the Dutch, to whom the king of Cidaio in the island of Java, made a present of it, at the time of their first navigation to the Indies in the year 1597. Though this bird does not

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THE RUFFED BUSTARD. *Male.*

OTIS HOUBARA.

London. Published by G.B. Whittaker Oct. 1828.

easily bear the voyage, there have been always some emus in Europe ever since that period.

Of the *New Holland Cassowary*, the bill of which is depressed, while that of the other is compressed laterally, M. Vieillot has formed a separate genus, under the name of EMOU, or DROMAIUS. White has given a figure of this bird in his account of his voyage to New South Wales.

Perron has represented the young, as well as the adult. The eggs are of a fine green, and about the bulk of the eggs of the emu.

This cassowary is tolerably common in the environs of Botany Bay and Port Jackson. It is very wild, and runs faster than a greyhound. Its flesh is not so ill-flavoured as that of the emu, and has a taste somewhat resembling that of beef.

Though our author has rejected, and probably with justice, the DIDUS of Linnæus from the animal kingdom, a brief notice of what authors have told us concerning these supposed birds, may prove not unentertaining to our readers.

The *Dodo*, or *Dronte*, in French *(Didus Ineptus)*, has been described and figured in many works, though its existence has been called in question by many writers. We shall give a short analysis of the facts relative to its discovery.

The Hollanders, who, in 1598, fitted out a fleet commanded by Admiral Cornelisz Van Neck, landed at the Isle of France, then generally called Mauritius, and before that known under the name of *Ilha do Cirne*, or *Cisne*, which had been imposed upon it by the Portuguese, and signifying the isle of swans. They there found birds as bulky as a swan, which had on a very thick head a sort of capote of skin, and but three or four black feathers in the place of wings, and four or five small greyish feathers, and frizzled, instead of a tail. These birds were named by the Dutch

Walyvogels, which literally signifies *birds of disgust*, on account of the hardness of their flesh, which cooking only seemed to render more coriaceous, except that of the stomach, which was found tolerably good.

A Dutch vessel set out from the Texel at the end of 1618, under the command of Bontekoé, and having landed at the Isle of Bourbon, then called Mascarénas, the crew found there the same kind of birds, which, so far from being able to fly, were so fat that they even walked with difficulty. The Hollanders named them *Dod-aers*, or *Dod-aersen*. The relation of Bontekoé, inserted in Hakluyt's Voyages, contains a figure of one of them under the first of these names, but without any other details.

Clusius has described the same bird under the name of *gallus gallinaceus peregrinus*, and of *cygnus cucullatus*, which latter epithet is derived from some fancied resemblance between the membrane covering the bird's head, to the capote, or cowl, of a monk. He describes it as having the bill oblong, thick, and crooked, yellow at the base, bluish in the middle, and black at the extremity. The body, according to his statement, was covered only with some short feathers, and four or five black quills were in the place of wings. The hinder part of the body was very fat; and instead of tail, there were four or five ash-coloured and frizzled feathers. The legs were rather short, and of an equal circumference throughout, covered with scales of a yellowish brown, from the knee to the toes. The same writer adds, that in the stomach of these birds were found stones of different forms and sizes, which, probably, they were in the habit of swallowing, like the granivorous birds to which systematists have associated them.

This description has been copied by Nieremberg; and Bontius, who has devoted to the dodo the seventeenth chapter of his "Natural and Medical History of the East Indies," adds,

that it has large black eyes, mandibles, the aperture of which is very ample, a curved neck, and a body so clumsy and fat, that its walk is very heavy.

The description of Willoughby differs but little from that of Clusius and Bontius; but he adds, that he himself beheld the spoils of this bird in the museum of Sir John Tradescaut.

Herbert, in his travels, tells us, that the dodo weighed at least fifty pounds, and that the stomach was hot enough to digest stones. The weight would appear to be exaggerated, and the pretended faculty of digesting stones is utterly inadmissible.

The figure of the dodo, found in "Edwards's Gleanings," was copied from a drawing made at the Mauritius from a living individual. This figure has served as a model for all others, and particularly for those given by Dr. Latham, by Blumenbach, and by Shaw. The last writer, having remarked some relations between the bill of the dodo and that of the albatross, inquires, whether an inaccurate representation, done by a sailor, might not have given rise to the supposition of a new genus; but when he considers what excessive negligence it would be in any painter to represent a web-footed bird with cleft and separated toes, and to substitute simple winglets for wings of considerable extent, he dismisses this conjecture as of little weight. The same naturalist being determined to continue his researches, in consequence of the assertions of Charleton, who, in his *Onomasticon Zoïcon*, affirms that the bill and head of the dodo were then in the Museum of the Royal Society, and of Grew, who mentions the leg of one of these birds among the curiosities of the British Museum, found the leg in question at the Museum, and another leg, with the bill and part of the cranium, in the Ashmolean Museum at Oxford, to which all the curious objects in that of Tradescaut had been transferred. These

two pieces came from the individual examined by Willoughby and Ray; and the foot, notwithstanding some injuries of time, seemed to him exactly like the one he had seen in London. Shaw gives the figures of them both, and declares that his doubts concerning the existence of the dodo were completely dispelled. But our author, as we have seen, by no means shares in this conviction, and thinks that the bill is not unlike that of the penguin, and that the foot, if palmated, would bear a sufficient resemblance to that of the aptenodytes.

It is certain, indeed, that the stripes and inflexions observable on the upper mandible of the penguins present a great analogy with those on the bill of the dodo, which is very different from that of the ostrich, the emu, and the other granivorous birds with which it was at first compared. Neither would it be at all surprising if the membranes which perhaps existed between the toes of the only individual brought into Europe in 1598, might have become the prey of insects, as is very frequently the case with specimens not taken proper care of in old collections.

There are, unfortunately, no other facts than those we have stated which are calculated to throw any light on the existence of the dodo, which has never been seen in Europe since the era above mentioned, when it was said that these birds were found in great numbers in the Isles of France, Bourbon, Rodrigue, and Sechelles. From the notes furnished by M. Morell to the Abbé Rozier, in 1778, and which were inserted in the "Journal de Physique," that all those monstrous birds called *Dronte*, or *Dodo*, *Solitary Dodo*, and *Nazarene Dodo*, were perfectly unknown to the oldest inhabitants of these islands, where they had not been seen for more than a century, it is impossible to conceive how birds of such weight, without proper wings, and not web-footed, consequently unable either to swim or fly, could cross the

space which separates the islands which have been assigned as their habitation. This reflection, too, invalidates the conjecture of Grant, that the dodo may yet be found on the coasts of some uninhabited islands. The only mode remaining of enabling us to form any positive judgment on the bird in question, would be to examine and compare the earliest relations of the penguins and manchots, and to see what analogies may exist between them and the accounts of the dodo.*

We have thus put our readers in possession of every thing

* The foot of the dodo is most like the foot of the cassowary of any known bird, for strength, and in the form of its scales; but it has *four* toes, while the cassowary has only *three*, and its tarsus is only about one-third the length of that of the cassowary, while its toes are of nearly equal size. The bill is truly the bill of a gallinaceous bird, and has not the slightest analogy in formation to that of the albatross; it is only covered with a very thin horny coat, except at the tip, while the bill of the albatross is very strong, and separated by well marked sutures. The original painting, brought by Edwards, is in the British Museum; it is copied Edw. t. 204; *Bont. Ind.* title page, and p. 70; *Shaw. Guisc.* t. 123; *Tonhst. Av.* t 56, f. 5; *Will.* t. 27; *Olear Mus.* xxiii. t. 13. f. 5; *Lath. Hist.* t. 135, *Zool. Jour.* iij. n. 3.

The foot in the British Museum is the one described by Grey, in his Rarities, p. 66. The bill and foot in the Ashmolean Museum must doubtless have belonged to the specimen of the bird that was in Tradiscaut's collection, (under the name of *Dodar*, Mus. Trad. p. 4.) and afterwards at Oxford, as stated by Hyde, which, according to the order of the visitors, was destroyed in Jan. 1755.

The foot is very like the specimen in the British Musuem; but it is one inch shorter, and comparatively smaller in all its other proportions, and therefore must have belonged to a second specimen of the bird. The foot evidently belongs to a gallinaceous bird, and is peculiar for its exceeding shortness and strength, and has not the slightest resemblance to that of any water bird. For a good account of the history of this bird, consult Mr. Duncan's interesting paper in the Zool. Journal. iij. t.

There are two other rough but original figures; first, *Clusius Exotica*, v. 90, cop. Zool. Jour. iij. n. 1, and *Herbert Tran.* 236, f. 3, cop. Zool. c. iij. n. 2.

of importance transmitted to us relative to the history of the dodo. We cannot quite agree with our illustrious author in totally excluding it from a place in the "Animal Kingdom." The relations which we have cited concerning it, do not appear to us to be so wholly unworthy of credit; nor does it seem very likely that web-footed fowls, like the penguin and the manchot, could have been so misrepresented as to be taken for the bird described as the dodo. Indeed it appears rather ultra-sceptical to refuse all credence to the testimony of writers like Willoughby and Ray, who seem to have examined a perfect specimen of this bird, and whose veracity and accurate judgment cannot very safely be called in question on any subject on which they possessed the opportunity of personal investigation.

It seems then, upon the whole, that this genus or species did once exist, and that it exists no longer in those countries which have been assigned as its habitation. This circumstance of the extinction of an animal, in such comparatively recent times, affords some curious matter for reflection, particularly in relation to the subject of extinct species in general. From peculiar circumstances, or defective conformation, it would seem that annihilation may be the lot of some species of animals, without the agency of elemental convulsions. We have ventured this opinion before, in the cases of the sloth and of the whale. The former existence of the bird of which we have been treating, if admitted, is confirmatory of not only the possibility, but the certainty, of such a fact. We also know that, in many parts of the earth, species which were formerly numerous, have long become remarkably scarce, and even sometimes altogether wanting. As man in his career of civilization extends his conquests over nature, and appropriates every habitable spot upon the globe, we may expect this to be more and more the case. Animals which are useless or pernicious to him, will disap-

pear more or less rapidly in proportion to the facilities afforded for their destruction, and leave nothing but their names and descriptions in the pages of the traveller and the natural historian.

Of the second family of the grallæ, the PRESSIROSTRES, the first genus is the BUSTARD.

There are few birds with respect to whose nomenclature more discordance has prevailed than in that of this genus. The resemblance of the Latin words *otis* and *otus*, the first employed to designate the bustard, and the second the owl, has proved a fertile source of error and confusion in the history of the former. To the great bustard also various names have been applied, such as *avis tarda*, *raphos*, *anapha*, *tetrix*, *starna*, &c. Sometimes it has been made an aquatic, sometimes a carnassial bird. With more reason it has been attached to the gallinæ; but though it has the bill and the heaviness of the latter birds, it differs essentially in having but three toes, and the larger species of this genus come naturally after the great running fowls, such as the ostrich and the cassowary, while the smaller approximate more to *Œdicnemus* and the Plovers proper.

All the species of this genus are heavy birds, which fly but little, though they shave the ground with rapidity when unable to escape their pursuers by running. These timid animals never perch, but fly with precipitation on the slightest indication of danger. They take pleasure in sandy and stony plains, distant from the neighbourhood of waters; they live on grains, and plants, and worms, and insects. One male is sufficient for many females. The number of their eggs is inconsiderable; they lay in the midst of fields, in some hollow place, and the young can run about and eat alone, from the moment of their birth. The males, in the greater number of species, differ from the females, by remarkable ornaments, and more variegated plumage.

M. Temminck, who describes but three species of bustards in the second edition of his Manual of Ornithology, divides them into two sections, the first of which comprehends the *great* and *little bustard*, and is distinguished by mandibles, compressed at the base ; and the second, the *ruffed bustard* (*otis houbara*), in which the mandibles are depressed at the same place.

Considerable differences have been remarked in the weight, length, extent of wings, and general proportions, in various individuals of the species of the *great bustard ;* but assuming a middle term, the average length of the male may be considered nearly four feet, from the tip of the bill to that of the tail, the weight about twenty pounds, or more, and the envergure about seven feet. The dimensions of the female are one-third less than those of the male; and many other variations are observed, all referable to the number of years which this bird takes to acquire its complete development. The male bustard is the most bulky of our terrestrial birds in Europe. Some variations have been remarked in its winter plumage, and the female is without the mustachios by which the male is distinguished, and the tints of her plumage are not equally strong.

The sides of the tongue of this bustard are distinguished by pointed papillæ, and in the palate and interior part of the bill, are small glands, the pores of which are very visible. Some of these are also in the passage of the œsophagus. But what is most remarkable is, a sort of sac or pouch, discovered by Dr. Douglas in the upper part of the neck of the male bird, and figured by Edwards in his seventy-third plate. A figure of it may also be seen in Bewick's History of our English Birds, published at Newcastle in 1797. This singular reservoir, the entrance of which is under the tongue, may contain many pints of water, destined to serve as a provision in the midst of the arid plains inhabited by the bus-

tard. Bewick also tells us, that the bird makes use of it as a means of defence against birds of prey, on which it shoots the water with considerable violence. Montague, in his Ornithological Dictionary, also speaks of this receptacle, and thinks that its principal use is to enable the male to furnish water to the female when she is sitting, and to the young, which would be unable to proceed in search of it to any distance.

These timid birds, whose course is rapid, remain habitually in open and spacious plains. They are found in some departments of France, especially near Fère Champenoise, and Sainte Menehould. Also in many parts of Italy, Germany, and England, and, in fact, in most of the northern parts of the Old Continent; but not in America.

Although the denomination of *avis tarda*, given by Pliny, seems to indicate a slow and heavy walk, yet the general opinion is, that the bustard runs with rapidity, and flies with difficulty. M. Riocourt, on the contrary, thinks that it can undertake long voyages. He quotes, in support of his opinion of the aptitude of this bird for flight, its supposed emigrations from the continent into this country; while Mauduyt, on the other hand, believes, that this island contained these birds before it was separated from the continent. Not to enter into any formal discussion of this point, we may remark, by the way, that such periodical migrations over a considerable extent of sea, by birds which, in general, shun water, are any thing but proved. It is, in fact, well known, that these birds are becoming more and more rare in this country. In Scotland, they are no longer found, and are scarce enough in our northern and even midland counties, where they were formerly abundant. The race, in fact, is so much decreased in this island, that its total extinction may be contemplated as neither improbable nor remote. The best proof of this is, that both eggs and young birds for

rearing, fetch a very high price, half a guinea being given sometimes for one of the former, and ten or twelve guineas for a brace of the latter. But that they were formerly plentiful here, seems pretty certain; and they are among the number of birds which are mentioned as constituting the delicacies of the tables of great men. All these facts are very unfavourable to M. Riocourt's conjecture respecting their periodical migrations, which, indeed, we think, may be very safely dismissed as a totally untenable hypothesis. It seems to be universally true that the bustards attach themselves to the countries in which they have been born; and such changes of place as an inclement winter and long continued snow may sometimes force them to make, cannot, with any propriety, be considered as genuine migrations.

Besides the plants, grains, insects, and worms, on which the bustards are said commonly to feed, it is pretended that, though chiefly granivorous, they will eat field mice, frogs, toads, and small lizards, and in the time of snow, the bark of trees, and the leaves of cabbage and turnips. It is also said, that, like the ostrich, they will swallow small stones and pieces of metal.

In the season of reproduction, the male goes strutting about the female, and makes a kind of wheel with the tail. These birds are polygamous, and after fecundation the females live alone. They lay in the month of May, in a hole in the ground, in a field of rye or wheat, two, and sometimes three eggs, on which they sit for about thirty days. They will, however, abandon them immediately, if they have been touched during any of their occasional absences in search of food. These eggs are about as large as those of a goose, and of an olive brown, with spots of a deeper shade. The young, which leave the nest the moment they are excluded, are covered with a white down. They are sometimes domesticated.

The bustard, especially when young, is esteemed an excellent game, and the quills, like those of the goose and swan, are employed in writing. Mauduyt and others have expressed a wish, that attempts were made to domesticate the great bustard; but though their being native to the climate, and the facility with which the young are tamed, offer inducements to such a measure, yet the small number of their eggs is no doubt a reason against its being generally undertaken. Pallas even informs us, in his travels in the southern parts of the Russian Empire, that the young bustards which are tamed and brought up in the Crimea, never lay eggs; and our countryman, Montague, in his Ornithological Dictionary, states, that they cannot be preserved above two or three years at most.

The *Little Bustard* (*Otis Tetrax*) is called by the French *Canepetière*, and also *Cane-petière* (with a hyphen), *Canepetrace*, or *Cane-petrate*; these names are derived from some fancied resemblance in the flight or attitude of these birds, with those of the wild duck, and from the predilection of the bustards in question for stony places. These names, or rather this name, for they are but one, may be considered objectionable enough, as leading to the supposition of an analogy between a bird that is so exclusively terrestrial, and one that is purely aquatic. We must also confess that the name of the little bustard is far from being sufficiently characteristic of this species, though its size does not exceed that of the pheasant.

Though this bustard is not very common in France, where perhaps it may be considered only as a bird of passage, it is yet less rare there than in many other countries. It is found in the departments of the Maine, of Poitou, of Berry, of Beauce, of Normandy, and principally in the environs of Bourges, and of Chateauroux. But it is not sedentary there, as in Sardinia, where it is called *gallina pratajuola*, and

where it passes the entire year. It is also to be seen in other parts of Italy; in Spain, where it is called *sison;* in Greece, and in Asia Minor. It is not common in England, Germany, or Sweden. Pallas has frequently met with small flocks of them in the plains of Southern Russia, among the Cossacks of the Jaik, and even in the deserts of Tartary.

The little bustards, which are as wild and suspicious as the great, remove to some distance, with a low and stiff flight, when they perceive any one, and afterwards run with great rapidity. In spring they arrive in France, and leave it towards the end of September. They delight in fields sown with oats and barley, and in meadows of clover, &c. They feed on grass, seeds, worms, and insects. In the month of May, which is the epoch of coupling, the male, who suffices for many females, calls them by a peculiar cry, which is heard at a considerable distance during the night, and the place of rendezvous is found trampled out like the threshing-floor of a barn. They nestle in the grass, and lay from three to five eggs, of a shining-green. The mother conducts the young, as soon as they are excluded, like the gallinæ.

These birds generally go alone, or in pairs, except at the season of their departure, when they assemble together. Their flesh, which is black, is a meat in considerable estimation, and the fowlers, in pursuing them, are obliged to have recourse to similar stratagems as with the great bustards. The males may be attracted by means of a stuffed female, the cry of which is imitated.

The *Ruffed Bustard* (*Otis Houbara*) is the same as the "petite outarde huppée d'Afrique," of Buffon, and forms the second section of M. Temminck in his Manual of Ornithology. It is distinguished by its long bill, depressed at the base. The same author adds, to this essential character, those of having on the head a large tuft of slender feathers, and similar feathers on the sides of the neck, the longest of which

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DENHAM'S BUSTARD,

OTIS DENHAMI—*Vigors.*

Mus. Brit.

London Published by G.B. Whittaker Nov. 1.1827.

are four inches, and capable of being spread out. Gmelin and Latham have given, as a separate species from this, another bustard, known in Barbary under the name of *Rhaad;* but Temminck has united them as one species. Our figure is of a young male bird; the top of the head, cheeks, back, wings, and tail, are light dun; the elongated feather, down the side, and under the neck, and the lunated marks, nearly black: the crest in the specimen was merely incipient from non-age.

It is said that the name of *Rhaad*, which signifies thunder, is given in consequence of the noise which it makes in shooting from the ground; and that its other name, *Saf-saf*, is an imitation of the sound of its wings in flying.

These birds are found in Barbary, in Arabia, in Turkey, and are birds of accidental passage in Spain and Silesia. Those which have been met in Numidia, towards the confines of the desert, live on insects and the young buds of plants. They are equally cunning and distrustful with the bustards of our own climates.

Major Taylor, who has seen in the environs of Bassora, bustards of the species houbara, by him called *hybarra*, says, in his travels, that the colour of the bird is a cinnamon-brown; that it is regarded as the best game of the country; that its flight is slow; and that it trusts more to its craft and swiftness in running, than to its wings. The Arabs sometimes follow it for half a day, and can approach it with great difficulty, and by no means within a short distance.

Of the *Otis Denhami*, a new species, of which the opposite is a figure, a specific description is inserted in the text.

We pass to the Plovers, beginning with the sub-genus Oedicnemus.

This name literally signifies *swelled leg*, and was given by Belon to a bird commonly known under that of the great plover, or land or stone curlew, and was generally classed

among the plovers proper. Latham has placed it with otis, under the appellation of *thick-kneed bustard*; but modern naturalists in general, and our author, as has been seen, having observed peculiar characters in the organization and manners of this bird, have adopted the denomination of Belon, and established the genus or subgenus of *Oedicnemus*.

The distinguishing characters are a peculiar swelling in the leg, just below the knee, especially when the bird is young; and the end of the bill swelled out, above as well as underneath, compressed at the extremity, and a little depressed at the base. The lower part of the legs and the tarsi are devoid of feathers, and the thumb is wanting, as in the plovers.

But one species was known, for some time, which, from very striking relations, has been associated with the bustards, and with the plovers, between which it appears to form a sort of passage. The name of land or stone curlew was given it only in consequence of some similitude of its cry to that of the curlew. It is the *Oedicnemus Europæus* of M. Vieillot.

These birds, which are larger than the woodcock, inhabit, by preference, uncultivated and sandy grounds, where they live on reptiles, snails, grasshoppers, and various other insects, and even, according to M. Temminck, on small mammifera. They are found in considerable numbers in the different parts of the Old Continent. They do not inhabit farther north than England, nor even here are they found in the colder parts; they are for the most part confined to our western counties. In France, they inhabit Picardy, Orleanois, Beauce, Champagne, &c., where they arrive before the spring, and from which they depart in the month of November, during the first autumnal rains. They are solitary and tranquil during the day, and very timid, but do not stir unless they are disturbed; then they fly, shaving the ground, or run off rapidly, after which they squat down, and remain immoveable. At the setting of the sun they bestir themselves, and

do nothing but utter cries for a considerable portion of the night. In the season of reproduction, they make no nests, the female contenting herself with depositing in a hollow in the sand, or between the stones, two or three eggs, very long, of an ash-colour, and spotted with greenish-brown. The male, which does not quit her during an incubation of thirty days, assists her in conducting the young, which can walk soon after their birth, but whose education, notwithstanding, appears to be rather slow. They preserve for a long time their grey down, and acquire the faculty of flying very tardily. These young ones are considered as a good game.

In Malta, they are said to have two broods annually, one in Spring, and the other in the month of August.

As for the other species of this subgenus, we pass them over, as containing nothing of interest, and proceed to the PLOVERS proper.

The characters of this genus are: bill shorter than the head, of moderate bulk, straight, and compressed; nasal furrow prolonged on the sides and for two-thirds of the length of the bill; bill inflated towards its extremity, nostrils pierced on the middle of a membrane which covers the nasal foss. The feet are moderate, and have three toes directed forwards, and no thumb. A small membrane unites the external with the middle toe. The internal toe is free. The wings are moderate, and the second remex is the longest.

The plovers habitually frequent the sea-coast, the mouths of rivers, and salt marshes. They feed upon crustacea, and small molluscous animals, which they catch in the sand along the line of waters, over which they are seen continually flying, uttering a little cry. Many species live solitarily, or in couples; some others in small flocks.

These birds are to be found in almost all the countries of the globe, from the equator to the coldest latitudes of the northern and southern hemispheres. They are all clad in

sombre colours, the distribution of which is, however, not unpleasing. Most of them undergo a double moulting, and are vested in various liveries, according to age and sex. Some species have spines, which serve as defensive weapons, attached to their wings; some others have fleshy appendages at the base of the bill. The plovers emigrate every year, in flocks of greater or less numbers, and this principally takes place in Autumn, during the rainy season, whence their French name (*pluviers*) is derived, and of which our word plover is an obvious corruption. At this time they are seen in the greatest abundance. They do not remain quiet when on the ground, but are seen in incessant motion. They fly in an extended file, or in transverse zones, very narrow and of a great length. Their flesh is delicate and much esteemed. They are frequently taken, in great quantities, in the countries where they are common, by means of nets variously fabricated.

Of these, the first and most common is the *Golden Plover* (*Charadrius Pluvialis*). This bird frequents humid and marshy grounds. In winter it is very common on the coasts of France and Holland. It is found in England during the entire year; it is also very abundant in the Highlands of Scotland, in the Western Islands, and in the Isle of Man. It is again found in America, in Asia, and in the Islands of the South Sea. Throughout the north of Europe it is common, and in all parts of Germany, Italy, and Spain. From the latter country we trace it into Barbary, and other parts of Africa; and it is to be found as far to the south-east of Asia, as India, China, and the Archipelago of the Eastern Ocean.

These birds lay from three to five eggs, of rather an olive-green colour, with black spots. They live on worms, insects, and larvæ. There is very little difference in appearance between the male and female.

These plovers strike the earth with their feet to cause the worms, &c., to issue from their retreat. In the morning, like the lapwings and the snipes, they visit the water side to wash their bills and feet. They are rarely seen longer than twenty-four hours in the same place, which doubtless proceeds from their numbers, which cause a rapid exhaustion of their means of subsistence in any given spot. They migrate from the districts which they inhabit when the snow falls and the frost begins to be intense, as their resources of provision are then cut off, and they are deprived of the water, which their constitution renders indispensable to them. It is very rare to see a golden plover alone, and Belon tells us that the smallest flocks in which they fly amount at least to fifty each. When they are seeking their food, several of them act as sentinels, and on the appearance of any danger, set up a shrill cry, as a warning to the others, and a signal for flight. These flocks disperse in the evening, and each individual passes the night apart; but at the dawn of day, the first that awakes gives a cry of appeal to the rest, which immediately re-assemble on this call. This cry is imitated by the fowlers to draw these birds into their nests.

The flesh of these plovers is, as we have said, in high estimation, in general, though the peculiarity of its flavour does not equally please every palate. It is best when the birds are rather fat than otherwise.

The *Dotterel Plover* (*Charadrius Morinellus*) is found peculiarly located in certain parts of this country, and not known at all in others. In France it is said to be merely a bird of passage, and inhabits deserted and marshy countries. It nestles in the north of Europe, but is more abundant in Asia. It migrates southward in winter, and is then found in Italy, in the Levant, and Greece. Its flesh is much esteemed, and deemed preferable to that of the common plover. This bird is remarkable for stupidity.

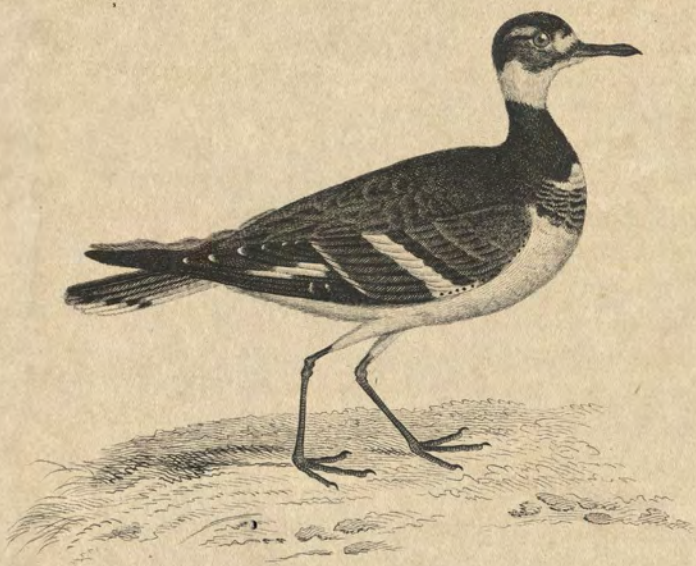
The *Ringed Plover* (*Charadrius Hiaticula*) moults twice a year. It nestles on sandy shores, or in meadows neighbouring to the sea. It lays from three to five eggs, of a yellowish-olive colour, marked with black lines. This species feeds on marine insects and small earthworms. It inhabits the whole of Europe, and is equally common in Holland, in France, in Germany, and in Italy. It frequents all the coasts of this kingdom, and, though scarce in winter, it probably never quits us altogether. It is also found in North America, and is not distinguished there by any peculiarity from the ringed plover in our climates.

The ringed plover has been indicated as inhabiting many other places, such as the Philippines, the Antilles, the Malouine Islands, &c.; but it seems more than probable that under this collective name many distinct species have been confounded.

Though the species of the plovers are very numerous, we do not find any thing further of sufficient interest to induce us to dwell upon them any longer here.

Our figure under the name of a variety of the Collared Plover, the *Jamaicensis* of Gm., and the Noisy Plover of the text, is from a specimen brought to Europe by the Rev. Mr. Hennah, from South America, now in the British Museum. The top and hind part of the head, the cheeks from the base of the upper mandible, the back and smaller wing-coverts, and tail, are reddish-brown of different degrees of intensity; the forehead, breast, belly, vent, thighs, tip of the tail-feathers, and of the larger wing-coverts, a band across the wing, and a broad collar from the chin round the throat, are white; beneath the white is another still broader, of black; and below that, on the upper part of the breast, are several small black and white undulations.

Brisson first distinguished and established the genus of the LAPWING, though, subsequently to his time, the birds com-



C. M. Curtis del.

Revd M.r Hennah's Mus.

COLLARED PLOVER. *Var?*

CHARADRIUS JAMAICENSIS. Gm?

London Published by G.B. Whittaker June 1st 1820

posing it have been classed with *tringa* by Linnæus and Latham, and with the *jacanas* by Gmelin and Lacépède. Their generic characters are these: the bill short, compressed, straight, slender, and swelled at the extremity of the two mandibles, the base of the upper mandible very much widened by the prolongation of the nasal furrow; nostrils cleft lengthwise in the membrane of the furrow; wings sharp; first remex the shortest, fourth and fifth the longest; carpus of the wing sometimes provided with a sharp spur; tarsi, narrow, of moderate size, with three toes before, and a thumb scarcely touching the ground.

The body of the lapwing is massive, and all the species resemble one another in their port and appearance. They live, in flocks, in humid meadows, and on the borders of rivers. Their manners are pretty analogous to those of the plovers, and, like them, they feed on worms, frog-spawn, &c., and even on the germs of tender plants.

The habits of the foreign species are not yet perfectly known. The European are birds of passage, and live in large flocks. These birds are found in all parts of the world.

From the lapwings, properly so called, has been separated the *Squatarola*, named by Latham the *Grey Sandpiper*. Its distinctive character is, that the first remex is the longest, and the thumb a mere rudiment; the latter is more developed in the lapwings proper, and they have the fourth and fifth remiges the longest.

This bird has been described by Gmelin under three names, and figured three times, in the "Planches Enluminées" of Buffon, according to the modifications of the plumage, which varies at different ages. The last mentioned author has given it the name of *vanneau pluvier*, to mark at once its analogies with the species of the two genera of the lapwings and the plovers. It is thought by some, that Aristotle speaks of this

bird under the denomination of *pardalis*, though it may be the golden plover which that author has in view. *Squatarola* is the Venetian name of the bird.

The grey sandpiper, or grey plover, as it is more commonly called in England, inhabits all Europe, a portion of Asia, and a considerable part of North America. Its habitual sojourn is the sea-shore near the mouths of rivers, and the miry borders of salt lakes and marshes. It is a bird of passage in all the temperate parts of Europe. It lives on earth-worms, small mollusca, and insects. It nestles in the North, where the female lays four eggs, of a very clear olive-colour, spotted with black.

Of the LAPWINGS proper we have but one species in Europe. The *Lapwing Sandpiper*, of Latham, *Tringa Vanellus* of Linnæus, and *Vanellus Cristatus* of Meyer and Temminck. It is one of the most remarkable birds of our countries, both by its plumage, and the elegant crest, which, arising from the occiput, falls gracefully over its back, being a little raised towards the extremity.

The plumage of this lapwing varies with age; the young have the tuft not so long as the adult. The black tints of the throat and chest are less deep in the female.

The name *lapwing* is obviously derived from the noise made by this bird in flying. The French name, *vanneau*, is still more expressive of this noise, which resembles the sound of a fan or *van*, used in winnowing corn. From this also comes the Latin, *vanellus*. The Greeks called this bird *æx*, or *æga*, in reference to its cry; but they also named it ταὼς ἄγριος, or *wild peacock*, a designation partly preserved by the Italians, who, at the present day, apply to it the diminutive, *paonzello* or *pavonzino*.

The lapwing, in rising from the ground, and taking its flight, utters a little cry, which may be well expressed by the French word *dix-huit*, and which has occasioned the bird to

be so named in many provinces of France. Its flight is powerful, of long endurance, and of very considerable elevation. When it traverses the meadows, it is accustomed to proceed from place to place by little jumps. Its vivacity is considerable; it keeps perpetually in motion, and hovers and sports in the air in a variety of fashions. It holds itself continually in different positions, sometimes with the belly upwards or sideways, and the wings in a perpendicular direction; and few birds display more grace and agility than this, in its various evolutions.

The lapwings are called in some parts of England green plovers, and they remain here the whole year. In France, they arrive in large flocks, which settle in the meadows, at the commencement of March, or towards the end of February. Their aliment principally consists of terrestrial worms, &c., which are plentiful at this season, and which they draw from the ground with great dexterity. When they have fed, they are observed to withdraw to dykes or ponds, to wash their bills which are filled with earth. Their manners are very wild, and being perpetually on the alarm, they retreat on the slightest noise in their neighbourhood to which they are not accustomed, and fly at the sight of a man, though he even be at a considerable distance.

The males dispute with great bitterness and obstinacy for the possession of the females. These last, when fecundated, lay, in the month of April, three or four oblong eggs, of a sombre-green, spotted with black, which they deposit on little clods elevated above the surface of the marshy grounds, which they usually select for their habitation; this nest is quite open, and the bird is in the habit of merely cutting the grass, and forming a small rounded space of the necessary dimensions. The lapwings sit on their eggs for four-and-twenty days. The young, when scarcely excluded, run in the grass; when they are stronger, the flocks of lapwings, scattered

through the marshes in isolated families, unite, and form bands of five or six hundred individuals, preparatory to their departure from France in the month of October; in that month these birds are very fat, because their aliment is more abundant, and can be obtained with greater facility. According to Olina, the lapwing remains all the winter in Italy.

The flesh of this bird is in estimation, though generally speaking, it is lean and dry. Some persons have succeeded in rearing them in a state of domestication, feeding them with beef's heart, cut into filaments. The eggs are said to have a delicious flavour.

The lapwing not only feeds on worms, but also on spiders, caterpillars, small snails, and insects of every kind, so that it renders a real service to agriculture by clearing the ground of a number of pernicious little animals.

This species of lapwing is extended throughout the whole of Europe. It is found in Kamtschatka, where the month of October is called the month of lapwings: this is the time of their departure from that country. Pallas has met with them throughout a considerable portion of the North of Asia. Sonnini has seen them in the marshy parts of Egypt; and other travellers have met with them in China, and in the different provinces of Persia.

Among the foreign lapwings worthy of notice is the *Vanellus Cayanensis. Parra* of Linnæus, *Cayenne Sandpiper* of Latham. This lapwing approaches to that of Europe in the tone and mass of its colours, and in its size and tuft; but it stands higher, and is armed with a spur at the fold of the wing. The names of *terutero*, or *teteu*, under which M. d'Azara has described this lapwing, express the cries which it frequently repeats with a loud voice, and which are sufficiently troublesome and sharp; it also sends forth the same cries during the night, if it hear any noise. This is the *aquapeazo terutero*, or *teteu*, of d'Azara; the first name is that

which it bears at Buenos Ayres, and the second is in use in Paraguay. This species is very common in those countries, and sedentary there. It neither frequents waters nor woods, and never rests but on the ground. These birds are usually seen in couples. Their flight is neither rapid, nor elevated, though sometimes it is considerably prolonged. These lapwings make curvettings in the air, sometimes holding themselves sideways, sometimes with the belly upward. They walk with short and frequent steps, the head and neck remaining unmoved. They are far from being wild or distrustful, and will fly round people as they walk along, as if desirous of assailing them with their bills; they do the same thing when they behold the *caracara*, or any other bird, or quadruped, approaching their nests. The females lay in the middle of October or November, and the eggs are four at the most, of a clear olive-colour, marbled with black; the female deposits them on some blades of grass, and sometimes even on the ground itself. The little ones follow the parents as soon as they are born. When any one approaches the young, the old ones cry out with all their force, extend their wings, suffering them to trail along, and begin to run and flutter, for the purpose of misleading or removing the object of their fear, so that it is easy to judge, from their gestures, if their eggs or young ones are in the neighbourhood. If they perceive that any person is about to carry off their progeny, they become furious, and assail the robber so closely as even to touch his hat.

Another lapwing, a native of Senegal, *Vanellus Senegalus*, has a habit worth remarking here. As soon as those birds behold a man, they commence to cry with all the force of their voice, and to hover round him, as if for the purpose of warning the other birds, which, the instant they hear them, take to flight and escape. They thus prove a serious annoyance to the hunters. From this circumstance the French

settlers in Senegal give them the name of *criards*. The Negroes call them *net-net*.

The Oyster Catchers frequent the sea-shore, rocks, naked strands, reefs, &c. When the sea rises, they retire before the tide; when it ebbs, they follow the reflux, grope in the moist sand for marine-worms, oysters, and other shell animals, on which they feed. They also live on star-fish, crabs, and other crustacea. Their bill is sufficiently strong to break the fragments of calcareous stone, which the pholades have detached from the banks, in order that they may eat the young animals therein contained. This bill is so conformed that these birds can open oysters with it, without finding any obstacle in the trenchant edges of their shells.

The oyster-catchers make no nest; they deposit their eggs on the naked sand, out of the reach of the waters; they chuse for this purpose the elevated parts of downs, and places covered with the debris of shells. They generally lay about five eggs, and the incubation lasts twenty or twenty-one days. The oysters-eaters are found, both in the old and new continents, and are also inhabitants of Polynesia and Australia.

The *Common* or *Pied Oyster-catcher* (*Hæmatopus Ostralegus*), has been sometimes called the sea magpie, in consequence of its black and white plumage, and the continual noise which these birds make, especially when they are in flocks. This sharp and short cry, which they repeat incessantly, is redoubled at the sight of man; accordingly, fowlers are not fond of meeting with these birds, for their cry is a signal of alarm to the other water-fowl.

These grallæ visit daily those parts of the coast where the fishermen cast away the intestines of the flat-fish, because they find among them an abundance of the small shell animals which these fishes have devoured. They do considerable injury to the fishermen themselves, for as soon as the sea ebbs, and before the latter have time to get to their nets, these birds fall upon the fish which are caught, and tear open their

bellies in search of the shell-fish, which they may contain. The flesh of the oyster-catcher is black and hard, and has a fishy taste. Some people, however, think it agreeable, while others reject it altogether—so true is it, that there is no disputing about tastes. The flesh of the young is, at all events, more eatable than that of the old.

The four or five eggs laid by the oyster-catcher are greyish, and spotted with black. The female does not cover them very assiduously. She does in this respect, says Buffon, what almost all birds frequenting the sea coasts are in the habit of doing; she leaves, during a portion of the day, the care of keeping the eggs warm to the heat of the sun, quitting them usually at nine or ten in the morning, and not returning before three in the afternoon, excepting it should happen to rain. A down of a brownish-grey covers the young ones at the time of their exclusion; from the very first day they begin to trail themselves along; in a very little time they can run; and then they conceal themselves in tufts of herbage, so that it is difficult to find them out.

This species is spread throughout Europe, and is sometimes seen in pretty numerous flocks, in France, on the sea-coasts, where it is even found to nestle. It is common in Great Britain, particularly on our western coasts. Oyster-catchers are also to be found in Gothland, in the islands of Denmark, as far as Iceland, and in Norway; they are spread over the shores of the Caspian Sea; they also frequent North America, and the extremities of its southern coasts. Dampier declares that he has met them on the shores of New Holland, but it is not improbable that he may have confounded them with distinct races, or varieties since observed.

The Coursers are peculiar to the coasts of Asia and Africa. Of their history nothing is known, excepting that they frequent the sea-shore, and run with extreme rapidity.

The single species which constitutes the genus Cariama,

was but little known before the time of M. D'Azara. To that judicious naturalist, however, we are indebted for details concerning its mode of life, which leave us nothing more to wish for, and which prove that it is not a bird frequenting marshes, and living on fish and aquatic reptiles. On the contrary, it does not sojourn in the neighbourhood of waters, nor even in low grounds. It frequents the borders of dry and lofty forests, and stony hills in preference. Its aliment is composed of terrestrial reptiles and insects. M. D'Azara is persuaded that it never drinks, and eats no grain of any kind. These birds are met in pairs, or in small flocks; they fly on the approach of man to a very great distance, and never betake themselves to their wings but as a resource in the last extremity of danger.

The *Brazilian Cariama*, which is sometimes domesticated, carries its neck stiff and vertical, and the head always raised. Its look is proud and disdainful, its gait grave and measured. When it entertains any suspicion of danger, it examines all around it with great attention before it decides whether to stop or run away. This last is its only mode of defence, and it never attacks or disturbs any other bird.

The natives of Paraguay give it the appellation of *Saria*, and the Brazilians call it *Cariama*; both names have relation to its shrill cry, not unlike that of a young turkey, but so loud, that it may be heard at the distance of a mile. We are told, that its flesh is delicate, and the Spaniards, in consequence, have called it a pheasant. It is rare in Paraguay, and is not found towards the river De la Plata.

We now come to our author's family of the CULTIROSTRES; the first tribe of which, forming in itself a great genus, is the CRANES.

These birds were ranged by Linnæus in his genus *Ardea*, and not distinguished from the herons, which, however, differ from them, especially by the bill, open as far as under the eyes; the denticulation on the internal edge of the claw of

BRAZILIAN CARIAMA.

DICHOLOPHUS CRISTATUS ILL.

London Published by Whittaker & Cº Ave Maria Lane June 1829.

the middle toe; the length of the thumb, which rests several articulations on the ground; and by the existence of a single cœcum. The generic character of Grus are, a bill straight, compressed, little cleft, the point of which is in an elongated cone, and the edges either smooth, or a little emarginated. The upper mandible furrowed on the sides; the membranous foss of the nostrils wide, and occupying nearly one-half the length of the bill; the tongue fleshy, broad, and pointed; the wings composed of twenty-four quills; the legs scaled or shielded: the external of the three front toes united by its base to the middle; the thumb scarcely touching the ground; the claws short, somewhat obtuse, and none of them denticulated, &c.

Although the cranes are at once insectivorous and granivorous, their habits are more terrestrial than those of the herons, storks, &c., and their aliment, more vegetable, consists in the grains and plants which grow in marshy places, to which they add insects, worms, frogs, and lizards. They are found in all parts of the globe, but a moderate temperature appears to suit them best; they seek the south in winter, but never fix under the torrid zone, and in summer they prefer the north. We might perhaps generalize more here on this tribe of birds; but as the majority of observations concerning them have been made upon the common crane, it may be as well to insert what we have to remark in this way, in our account of that species.

The Agamis, after the example of Pallas, have been placed by M. Cuvier as a subdivision of the head of the cranes. Their generic character consists in a conical, somewhat convex, and sharp bill, the upper mandible longer than the lower; the nostrils oval and very open; the tongue cartilaginous, flatted, and fringed at the extremity; the tarsi elevated; and the lower part of the legs devoid of feathers; four divided toes, of which the hinder one does not touch the ground.

It may be remarked, that other authors have placed this

subgenus among the gallinæ, to which indeed its natural habits appear to approximate it.

The *Agami* of America, as some writers call it, (*Psophia Crepitans*,) is the *Caracara* of Buffon, but not of Marcgrave; it is called *Camy Camy* at Surinam. These birds, which are never seen in marshes, on the borders of waters, or on the sea-shore, are spread through the mountainous forests of the hottest parts of South America, where they live on wild fruits. They are often met in numerous flocks in the interior of the lands of Guiana, but they do not love open and inhabited places. Sometimes they run with rapidity; sometimes walk with a grave step, and sometimes bound along. They often stand on one foot, like the storks; and their body, like that of those birds, assumes various attitudes. Their wings and tail, more especially, being very short, their flight is heavy; and when, though by no means of a distrustful character, they fly from the fowler, they are soon observed to alight at a little distance on the ground, or on the lowest branches of trees, where they are easily caught; but, more generally, in case of a surprisal, these birds have recourse to their speed in running for security, and their starting is always preceded by a sharp cry. They construct no nests, but form a hollow at the foot of a tree, in which the female lays from ten to sixteen eggs, of a clear-green, nearly spherical, and more bulky than those of hens. They breed twice or three times a year.

The name of *Trumpet Bird*, has been given to the Agami, from a peculiar faculty which it possesses of producing deep sounds, not unlike some tones of a trumpet. The Greek-formed name *psophia* from Ψοφεω, (to make a noise,) has been bestowed upon it for the same reason; this noise was supposed to proceed from the anus, but, in fact, it originates from a peculiar conformation of the trachea and the lungs, and is heard only through the tissue of the membranes and flesh, and produces an effect similar to that of the grumbling

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THE AGAMI or GOLD-BREASTED TRUMPETER.

PSOPHIA CREPITANS.

Published by Whittaker & Co. Ave Maria Lane. Jan.y 1830.

of the intestines. Our readers will remember, that in our supplement to the last order, we noticed a similar phenomenon in one of the hoccos. The noise made by turkey-cocks preliminary to their cry, and the cooing of pigeons, which is executed without opening the bill, differ from this only by being produced in a less low and distant part of the throat.

The agami is very easily tamed, and will even attach itself to the person who takes care of it, with as much affection and fidelity as a dog. It obeys the voice of its master, follows or precedes him, bestows caresses upon him; and testifies, after his absence, the joy with which it is inspired by his return. It is very susceptible of jealousy, and will drive strange animals away, not fearing even cats and dogs, whose attacks it evades by raising itself in the air, and then it will harass them, by descending upon them, and striking them violently with its bill. It takes great pleasure, like the cat, in having its head and neck scratched, and grows importunate in its demands for a renewal of this gratification. Like the dog, it knows the friends of the house, and hurries out to greet them; but when displeased with any persons, it will strike at their legs with its bill, and pursue them to a great distance with all the symptoms of anger. It goes out alone, proceeds very far without losing itself, and invariably returns to its master. Those which run through the streets in the town of Cayenne, will sometimes attach themselves to a passenger, and follow him every where. It is even said, that the agami will accompany flocks of sheep, the care of which is confided to it, to the pasture, and bring them back in the evening to the habitation of their owner. It is, however, more certainly known, that in the poultry-yard it makes itself master of the hens, and other domestic birds, obliging the laggers to enter the lodging prepared for them in the evening, and then going itself to repose upon a roof, or on some neighbouring tree.

When the agamis are very young, they prefer small worms

and meat; the old ones readily eat grain of all kinds and bread. The flesh of the young, without being very succulent, has yet an agreeable flavour; but that of the old ones is black, and invariably hard and indigestible.

The sagacious instinct of the agami, and its social manners, have suggested to many naturalists the desire of seeing it habituated to our European climates, and domesticated among us. The experiment should first be tried in our most temperate regions, and a sufficient space, and a situation suitable to their habits, be allotted to the individuals imported, so that they might thrive and multiply.

It is quite evident, from all that we have now stated, concerning the agami, that it has no business in the place which it occupies in the systems of naturalists. The length of its legs alone entitle it to be ranked with the grallæ, or long-legged birds; but to fix it among the *waders*, or water birds, is truly absurd. Its habits, its manners, many points of its conformation, the very kind of noise above mentioned which it produces, its docile and social character, the nature of its aliment, and the places which it inhabits by preference, all most clearly link it with the gallinæ. Yet perhaps the conformation of its digestive organs will not permit us to place it exactly in that order. This bird, in fact, only furnishes an additional proof of the difficulty, or rather the impossibility, of making Nature bend to our artificial systems, or even of following her through the endless variations and connexions of existence, in the methods which we have termed natural. This, however, affords no reason for abandoning such methods. Every approximation to a more accurate picture of creation as it is, is a step gained in the progress of true science.

In reading the history of the agami, we almost feel tempted to accuse Nature of partiality, in having fixed this elegant and and social bird in the depth of remote and deserted forests. But, to speak with propriety, there are no deserts in nature. It is man, who, in the pride of his heart, and the nar-

rowness of his understanding, has imposed this contemptuous appellation on those portions of the globe which are yet sacred from his invasion. Such was once the case with those tracts of territory which he has long reduced to cultivation, and the time must come, when he will subdue in the same manner, every habitable corner of the earth. Those vast solitudes of South America, those immense and ancient forests, which fall and are renewed without his intervention, will one day disappear. Mighty edifices will be raised upon the ruins of those gigantic children of the vegetable kingdom. The fresh and humid soil will be dried up, and become the beaten track of human population, and support the weight of towns and cities. Numerous habitations will replace the rarely scattered huts of tribes yet uncivilized. Culture will prevail over the lands which are now spontaneously covered with a multitude of plants; then, perhaps, the species of which we are writing will be destroyed for ever, or reduced to the slavish existence which man calls domestication.

Among foreign cranes we must first notice, following the order of the text, the *Ardea Pavonina, Crowned Heron* of Latham.

This bird, which was brought into Europe about the fifteenth century, from that part of the African coast then discovered, owes its name to the tuft of hairs which it can display at pleasure, spreading over the occiput. The gait of this crane is noble, and its form elegant. It is about four feet high.

The crowned heron is an inhabitant of the warmest climates. It is found in Africa, especially in the countries of Gambra, on the Gold Coast, in Fida, at Cape Verd, in Whida, and in the neighbourhood of the river of Pouny, in Guinea. The Africans, who hold it in high veneration, call it the herald of the Fetish, because it makes a noise with its wings something like the sound of a French horn. This

bird comes sometimes into the inland, to feed on herbs and gather grains. It also frequents inundated places to catch small fish, and feeds moreover on earth-worms and insects. Its ordinary walk is slow; but when it avails itself of the assistance of the wind, and extends its wings, it can run with great swiftness. Its flight is also greatly elevated, powerful, and sustained. It perches in some exposed place in the open air, for the purpose of sleeping, like the peacock, which it resembles in its cry, as well as in its crest. From these circumstances it has been named marine peacock, short-tailed peacock, &c.; and the Latin epithet *pavonina* has been applied to it. It has been also very gratuitously termed *Grus Balearica*, for nothing proves that there is any analogy between it and the Balearic crane of Pliny, or that it ever inhabited the islands from which this name is taken.

The crowned heron is a mild and peaceable bird in its disposition; it approaches man with confidence, and even pleasure; and we are assured, that at Cape Verd' it is half domesticated, and will come to eat grain with the poultry in farm-yards. Buffon, who brought up in his garden an individual which was sent to him from Guinea, says that it used to peck the hearts of lettuces and other plants, but the food which it preferred was boiled rice. Besides the sonorous cry resembling the sound of a trumpet or chorn, it also makes a sort of internal noise, something like, though louder, than the clocking of a hen.

This bird was fond of exciting attention, and would follow the persons who approached him. In a state of repose it rested on one leg, holding its neck folded round, and the body rather sunk down; but on the slightest occasion of disturbance or surprise, it raised its head, assumed a vertical position, and advanced gravely and with measured steps. Its legs answered the purpose of ascending any elevation very well; but when obliged to descend, it would unfold its wings

to shoot off, which rendered it necessary to have them clipped from time to time. During the winter of 1778 it chose the shelter of a chamber with a fire in it, to pass the night; but it resisted wonderfully well the rigours of a climate so very different from its own. From experiments made at Versailles on several of the following species whose habitat is the same as that of the crowned heron, there appears no reason to doubt that these fine birds might be easily accustomed to our European climates, and brought up in a state of domestication.

The *Demoiselle Heron, Ardea Virgo, Grus Virgo, Demoiselle de Numidie*, &c., owes its name to its elegant gait, the ornamental plumes of its head, and certain mimic gestures which it makes,—inclining its head, walking with a kind of ostentatious air, and leaping and bounding as if it were about to dance. All these peculiarities of the demoiselle of Numidia are mentioned by many ancient writers; and Xenophon in Athenæus speaks of a stratagem by which these birds might be caught, which consisted in rubbing one's self with water in their presence, and then filling the vessel with glue before going away. Notwithstanding this, the acquaintance of the moderns with this species is comparatively of but recent date. They at first confounded it with the *Scops* and *Otus* of the Greeks, *Asio* of the Latins, in consequence of the gestures which that owl makes with its head, and by mistaking its ears for the tuft of slender threads which covers those of the demoiselle. M. de Savigny, in his observations on the system of the birds of Egypt and Syria, demonstrates, with much acumen, that the bird in question here is the *Crex* of the Greeks; and he also mentions that it is the *Bibio*, or *Grus Balearica*, and *Grus Minor*, of the Latins, though ornithologists place these denominations in the synonimy of the preceding species.

These birds are found in various parts of Africa and Asia,

in the interior of the countries of the Cape of Good Hope, but more particularly in the ancient Numidia; and they are observed to arrive in Egypt at the epoch of the inundation of the Nile. Some are also found on the southern coasts of the Black Sea, and the Caspian; but it is invariably marshy places which they frequent. They feed indifferently on grains, insects, worms, shell-mollusca, and even small fishes, which they catch with great dexterity. Their cry resembles the clamorous tones of the crane, but is much more feeble, and sharper.

The *Common Crane* (*Grus Cinerea*) is remarkable for the strength of its voice, from which the names given it in many languages are obviously derived. This faculty seems attributable to the numerous circumvolutions of the trachea. It appears, in fact, from the observations made by Duverney, on dissecting an African crane, that the trachea, piercing the sternum, entered there profoundly; and, after having formed many knots, went out by the same aperture to proceed to the lungs. It has been since ascertained, that in the female the trachea does not penetrate so deeply into the breast as in the male, and that its circumvolutions are much less numerous and considerable.

The cranes, though aborigines of the North, visit the temperate regions, and advance towards those of the South. The ancients seeing them arrive alternately from both the extremities of the then known world, named them equally *Birds of Scythia*, and *Birds of Lybia*. As they were accustomed to alight in large flocks in Thessaly, Plato has denominated that country the *Pasture of the Cranes*. Their pretended combats with the pigmies,

> "That small infantry,
> Warring on cranes,"

are well known; and if there was any foundation for such a

fable, it is possible that the latter were only a species of monkeys or apes. These birds, quitting Sweden, Scotland, the Orcades, Podolia, Lithuania, and all northern Europe, come, in the autumnal season, and settle in the marshy parts of France, Italy, &c., pass from there into still more southern regions, and, returning thence in spring, bury themselves anew in the cold bosom of the north.

The cranes, whose flight is very elevated, experience some difficulty in taking their spring from the ground. They run some paces, raise themselves a little at first, and then unfold a powerful and rapid wing. They form in the air very nearly an isosceles triangle, doubtless for the purpose of cutting the element with greater facility. When the eagle attacks them, or the wind is likely to break their order, they close in circles. Their passage often takes place during the night; but their sonorous voice announces it, and the chief of the troop often utters, to indicate the route he is taking, a cry of appeal, to which all his followers respond. The clamorous noise of these birds is often alluded to by the ancient poets:—

——— "Quales sub nubibus atris
Strymoniæ dant signa grues, atque æthera tranant
Cum sonitu, fugiuntque Notos clamore secundo."
Æneid, X, 264, &c.

The various inflections of their flight have been regarded as presages of the weather, and indications of atmospheric temperature. Their cries in the day-time are ominous of rain, and, according to the poet just cited—

"——— illum surgentem, vallibus imis,
Aëriæ fugêre grues."

More noisy clamours announce the coming tempest; a steady and elevated flight in the morning or evening, for-

bodes serene weather; a lower flight, or a retreat to the earth, is the symptom of a storm.

The cranes, when assembled for repose during the night, sleep with their head under the wing; but one of them always watches with his head raised, to give the signal of alarm in case of approaching danger.

It is in the low grounds and marshes of the northern countries that the cranes on their return build their nests. These are placed on small eminences of turf, and constructed with reeds and grass interlaced. Here the female lays two eggs of a greenish-ash colour, and she covers them standing up. The male partakes the cares of incubation; and whichever of the birds is not engaged in this function, watches at a little distance for the security of the other. Their attachment for their young is so great that the white crane of Siberia will rush even upon men who approach the nest, and not unfrequently succeed in driving them away.

The flesh of the young is delicate; it used to constitute one of the dishes at the banquets of Rome, and was sold in the markets of that city. The same was once the case in England, where, according to Willoughby and other writers, these birds were once sufficiently plentiful. This, however, is no longer the case, for they are very rarely seen in this country. They are peculiarly abundant in the Steppes of Tartary, and on the confines of Mongolia.

The crane is said to be a long lived bird. The philosopher Leonicus Thomæus, according to Paulus Jovius, kept one alive for forty years. These birds can be taught to assume peculiar gestures, and to dance. They are hunted in various ways; but as it is not easy to get very near them, the most successful method of killing them is with ball cartridge.

The *Courliri* is the name at Cayenne for the bird represented in the "Planches Enluminées" of Buffon, under the name of *Courlan*. Gmelin and Latham have placed it among

the herons, to which in fact it approximates in size much more than to the curlews, and from which it differs only by a very slight curvature at the extremity of the bill. M. Vieillot having remarked that its toes were entirely separated, while in the other species of the genus *Ardea* they are united at the base, and that the intermediate claw, pectinated in the latter on the internal edge, was dilated, but entire in the *Courliri*, and also in the *Carau*, a bird described by M. d'Azara, which presents other peculiarities, has made a distinct genus of them under the name of *Aramus*.

The manners of the *Ardea Scolopacea* are the same as those of the herons.

There is another species, the *Carau* above-mentioned, *Aramus Carau*, Vieillot, common in Paraguay. This bird has the easy and light walk of the herons, and like them it lives solitarily, or in couples, but it is not so quick and vivacious. It does not conceal itself, and instead of flying, like the herons, only as a last resource, and then but for a short time, it rises instantly into the air on being disturbed, and remains there for some time without attempting to approach the ground. Its wings are more ample, its shoulders broader, its tail and bill stronger, its neck and legs shorter, and its toes longer than those of the heron. It perches on the summit of trees, and lives like the heron on the products of argillaceous lands; but it does not enter the water to procure its subsistence, and eats neither fish nor serpents. When its attention is arrested by any noise, it utters, in the day-time, and even at night, the syllables *carau*, with a piercing voice, a cry which may be heard at the distance of a mile and a half. M. d'Azara has been assured that this bird conceals its nest very carefully in places where stagnant waters abound. The female lays two eggs, and the little ones follow the mother immediately after being born.

The *Caurale* is a bird of Guiana, which inhabits the banks

of rivers, and has been placed by Gmelin with the herons, and with the snipes by Latham. Buffon, who finds in its feet and bill some resemblance with the rail, from which it differs by having a longer tail, invented the term *caurale*, to give an idea of its characters. M. Illiger has made a distinct genus of it, between the heron and the umbre, on which he has imposed the name *Eurypyga*, which indicates the breadth of its tail, but which is inconvenient from founding a generic distinction on a character purely specific. M. Vieillot, who has also formed a genus of the same bird, has applied to it the denomination of *Helias*, already employed by Gmelin and Latham to designate the known species. M. Temminck also makes it a separate genus; and finally, our author, as we have seen, places it along side of the *Courliri*, between the cranes and savacous.

Hitherto but a single species of the caurale is known, *Ardea Helias* of Linnæus and Gmelin, *Scolopax Helias* of Latham. It is figured in the "Planches Enluminées" of Buffon. This bird is not larger than a partridge, and is named by the Creoles of Cayenne, *Little Peacock of the Roses*. It is unnecessary to enter into its description, and its habits are similar to those of the snipes.

The Savacous (Cancroma) are called in English, *Boat Bills*, from the peculiar form and breadth of the bill. They have considerable analogy with the herons. The mandibles of the bill, applied one against the other by the concave side, are very broad, strong, and trenchant. The upper one, on which two deep grooves are observable, which proceed from the nostrils, is terminated by a hooked point, while the lower is sharp. The nostrils are oblong, longitudinal, and covered with a membrane, and there is a membranous pouch under the throat. The three anterior toes, very long, are united at their base by a short membrane, and the posterior touches the ground by its whole extent. The claws are narrow and

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CINEREOUS BOAT-BILL.

C. COCHLEARIA.

London Published by G.B. Whittaker Nov. 1828.

short; the second, third, fourth, and fifth remiges are the longest.

The *Boat-bill, C. Cochlearia*, which is found in the hot and humid parts of South America, inhabits the inundated savannahs, frequents trees, &c. along the banks of rivers, where the sea tide does not ascend; accordingly, although the name *cancroma* would seem to indicate that crabs formed its principal nutriment, its habitual remoteness from the sea gives us reason to think that such is not the case; and that, on the contrary, it lives on fish of the fresh water, on which it darts in the course of their passage, raising itself again immediately, and not resting on the stream. In walking it keeps the neck arched, the back vaulted, and has altogether the sad and melancholy air of the heron. When it is caught and irritated it gnashes the bill, the feathers of the head become erect, and it darts with fury on the object of its anger. As differences have been remarked in the plumage of different individuals, it was at first supposed with Barrère and Brisson that there were many species of the boat-bill; and in the "Planches Enluminées" of Buffon, 38 and 869, figures are found, one of which, under the title of *Savacou Huppé de Cayenne*, has more of reddish-grey than bluish-grey; and the other, under the denomination of *Savacou de Cayenne*, has the entire mantle of a bluish-grey white, with a small black zone on the upper part of the back. The first appears to be the male, and the second the female.

We now come to the division of the HERONS. This genus of birds, which more particularly comprehends the species known under the denominations of egrets, bitterns, crab-eaters, &c., has the following general characters. The bill longer than the head, robust, sharp, compressed laterally, and armed in many of them with denticulations, turned backwards, and intended to retain the slippery fish; the upper mandible furrowed on each side by a longitudinal groove, its

ridge rounded, and frequently an emargination towards the end; the nostrils lateral, placed nearly at the base of the bill in the groove, and partly closed by a membrane; the tongue flat and pointed; the eyes surrounded with a naked skin extending to the bill; the legs shielded, and devoid of feathers for a greater or less space above the knee; the intermediate of the three anterior toes united to the external by a short membrane. The interior free, and the thumb articulated near it beside the heel, resting on the ground by its entire length. The claws long and sharp, and the middle one dilated and pectinated on the internal edge, so as to furnish to the bird a support and the means of fastening on the small roots, &c. as it traverses marshy and muddy places. The wings moderate, and the first remex a little shorter than the second and third, which are the longest.

The herons have but a very small cœcum; their stomach is a large sac, of no great muscularity; they inhabit on the borders of lakes and rivers, or in marshes, and feed on fish and their spawn, on reptiles, aquatic insects, fresh water shell-mollusca, and the various animals which creep through the mud, and the sand which covers it. It is also said that they will eat shrews and field-mice. They are melancholy birds, remaining almost immoveable for hours on the edge of the waters. With their body erect, the neck folded on the breast, the head leaning on the back and almost concealed between the shoulders, they dart their bill like an arrow on the fish as it glides along, or occasionally grope in the mud with their feet, to make the frogs, &c. come forth. This sort of life hardly permits them to live in flocks; and if they do unite for the purpose of nestling in the same places, it is natural to suppose that during the day they must generally remain isolated. Though they are to be met with in different places, and at considerable distances, they must rather be considered erratic birds than birds of passage,

since they depart and return in the different seasons and at undetermined periods, according to the temporary abundance or lack of food, and they can equally support the extremes of cold and heat. On this point, however, M. Temminck does not agree with Mauduyt, the herons, according to him, being birds of periodical passage, and emigrating in large flocks. The great majority of them make their nests on elevated trees, at no great distance from rivers, in which the young are reared until they are in a state to fly. In their flight, which is very elevated, the neck is folded, and the head rests against the upper part of the back. Almost all of them are semi-nocturnal, or crepusculous birds.

According to M. Temminck, in all the species four spaces are observable, furnished with a cottony kind of down, and the moulting takes place but once a year. The long feathers with divided barbs, with which some species are ornamented on the back, do not re-appear so quickly as the others, and these species are deprived of them during a part of the winter. The young also acquire very tardily their tufts and other accessory ornaments. No very obvious differences have, as yet, been remarked between the sexes.

The numerous family of the herons has been divided by Buffon into four sections:—The *Herons Proper* and the *Egrets*, whose characters are a very long neck, and very slender, narrow, and lean body, for the most part, raised on long legs. The *Bitterns*, in which red with spots is the predominating colour, the body thicker, the legs less long, and the neck shorter, and so furnished with feathers as to appear very thick in comparison with that of the first divisions. The *Night Herons* (*Bihoreaux*), in which the neck is shorter than that of the bitterns, and whose size is less, and which have two or three long feathery sprigs implanted in the nape, and a slight curve of the upper mandible. And, finally, the *Crab-eaters*,

whose size is smaller than that of the herons, but whose proportions vary considerably.

This division, as may be seen by the text, is followed by our author, with merely some slight variation in the order of succession.

M. Vieillot has adopted the above four divisions as to nomenclature; but he has separated the herons into two grand sections: the first of which, distinguished by a straight bill, and a long and narrow neck, comprehends the herons proper, the crab-eaters, and the *Blongios* (*Ard. Minuta et Danubialis*); the second, composed of species with a shorter and stouter neck, and having the upper mandible a little curved, contains the night-herons and the bitterns.

M. Temminck, who has made a peculiar study of the herons, and has in many respects rectified their nomenclature, has also, in the second edition of his "Manual of Ornithology," published at Paris in 1820, distributed the different species of the genus into two sections. Those of the first, which is devoted to the herons proper and the egrets, are distinguished by a bill much longer than the head, as broad as, or more broad than high at base, the upper mandible nearly straight, a large portion of the tibia naked, and by living principally on fish. The species of the second section, which comprehends the night-herons, the crab-eaters, the bitterns, and the blongios, are distinguished by this naturalist, as having the bill of the same length as the head, or a little longer, more high than broad, and very much compressed; the upper mandible slightly curved, a very small portion of the tibia naked, and the rest emplumed as far as the knee. Besides these general characters, the night-herons possess another, consisting in two or three straight, long, and subulated feathers, which they have on the occiput; and the bitterns are distinguished by their neck, often very stout, abundantly covered with fea-

thers capable of erection, and by the very thick down with which the back of the neck only is furnished. Fishes form the nutriment of this second division, more rarely than insects, worms, or spawn.

The *Common Heron (Ardea Major,)* Linn. *et Cinerea,* Lath., has been often figured. The young, under the age of three years, has been taken for the female, and is either without a tuft, or has one with very short feathers. It has neither the black band upon the breast, nor the long narrow feathers of the bottom of the neck or top of the wings, and the general colours are more dull.

The heron seeks every where the neighbourhood of lakes, of rivers, and of lands intersected by water. Almost always solitary, it remains, for hours together, immoveable in the same spot, placed on a single foot upon a stone, with the body straight, the neck folded down on the breast and belly, the head and bill couched between the shoulders, which are raised, and considerably exceed the chest. When it puts itself in motion to watch, upon their passage, and more nearly, the frogs and fishes, which constitute its chief aliment, it enters into the water above the knee, with its head between the legs, and in this position, after having patiently awaited the moment of seizing its prey, it suddenly unfolds its long neck, and pierces its victim with its bill. It has been ascertained that it swallows frogs entire, for their bones are found in its excrements, not broken, and enveloped in a viscous mucilage of a green colour, which is probably formed of their skin, reduced to a paste. In time of dearth, and when the water is covered with ice, it approaches running streams, and hot springs, where it is said to feed on the water-lentil, and other small plants. But it frequently exposes itself to perish of inanition, rather than seek a milder climate. In the different seasons of the year, it constantly appears so melancholy and insensible that it will remain isolated and exposed

in the worst weather, on some stump in the midst of an inundated meadow, while the blongios takes shelter in the thick herbage, and the bittern in the midst of the reeds. These herons, which unite to their sad and monotonous existence all the torments of perpetual fear and inquietude, are not accustomed to take flight, except at night, and for the purpose of betaking themselves into the woods of thick and lofty foliage in the neighbourhood, and from which they return before the dawn of day. Then it is that their sharp and unpleasant scream is heard, which might be compared to that of a goose were it not shorter and more melancholy. In the day-time they fly away to a great distance from the sight of man, and when attacked by the eagle or the falcon, they endeavour to escape by rising into the air, and getting above them. Belon tells us that, as a last means of defence, and when they are almost overtaken by a bird of prey, they pass their head under their wing, and present their pointed bill to the assailant, who, rushing on it with too much impetuosity, is himself pierced; but the fact is, that this is the natural position of their bill in the ordinary action of flight. The heron, in this case, stretches his legs behind, and rests the neck, head, and bill on the back, and the bill then appears to issue from the chest. Its wings, larger in proportion than those of any bird of prey, and very concave, strike the air in an equal and regulated motion, and this uniform flight raises and carries its body, so slender and light, to such an elevation, that, at a distance, nothing is perceptible except the wings, which are at length lost sight of in the region of the clouds. Among the symptoms of the approaching storm, Virgil notices this lofty flight of the heron:

——— Notasque paludes
Deserit, atque altam supra volat ardea nubem.

The common herons place their nests on the summit of the

most elevated trees, and very seldom on bushes in coppice wood, &c. The nest is composed of small branches of dry herbs, rushes, and feathers, and the female deposits there four or five eggs, of an elongated form, pretty equally pointed at both ends, and of a pale and uniform green. In all probability, the identity of the situation chosen by the heron and the raven to nestle in, suggested to the ancients the notion of a friendship having been established between beings so very dissimilar.

The male takes great interest in the female during the period of incubation, and constantly brings to her the fruits of his fishing.

Though the common herons are solitary birds, not numerous in any inhabited country, and living isolatedly in all, yet no species is more remotely extended in the most opposite climates. It has been observed in France, in Switzerland, in Holland, in England, in Poland, in Norway, in Siberia, and throughout various other parts of the ancient continent, as Persia, Japan, Guinea, Congo, Malabar, and Tonquin. It even appears that this species has been seen in the western world, in the Antilles, and Louisiana, and even in some islands of the Southern Ocean.

When this bird is taken in an adult state, it is utterly impossible to prevail upon it to accept any food. It will even reject that which it has been forced to swallow, and melancholy so completely overcomes the instinct of self-preservation, that it suffers itself to die of languor and inanition. But when it is caught young, while the head is yet covered with that soft down which it preserves for a long time, it may be tamed, and will feed upon the entrails of fish, and raw meat. It will gradually become accustomed to domestication, remain with the fowl, and even show some symptoms of affection, or rather, more probably, some susceptibility of education, by twisting its neck round the arms of its master, &c.

The flesh of the heron is not good, though it was formerly set down as a royal game. This, no doubt, was in consequence of the fine sport these birds afforded in falconry, from their elevated flight. Heron-hawking was a favourite diversion with princes, and with our ancestors in general. No one was permitted, out of his own ground, to take any herons, except with falcons, or long bows; and a penalty of six and eight-pence was affixed to the infringement of this statute. For taking the young out of the nest, there was a fine of ten shillings, and for taking or destroying the eggs from March 31st to June 30th, the punishment was a year's imprisonment, and eight-pence for every egg. *Heronries* were established in lofty woods, near waters, or even in towers, where commodious aëries were presented to the birds to nestle in, and even some profit resulted to the proprietors from the sale of the young.

Though this species seeks its food, &c. during the day in a solitary manner, yet, in one sense, at least, it seems fond of society. The individuals build their nests together, and as many as eighty of these nests, says Dr. Latham, have been seen on one tree. They generally choose the loftiest and most stately trees for this purpose, and many of these kind of heronries may be seen in various parts of England.

The crests of the male heron are used as ornaments, both in Europe, and, especially, in the east, and bear a very considerable price. Sir John Chardin tells us, that the Persians catch this bird, and when they have deprived it of its long feathers, restore it to liberty. This is one example of the gentleness towards the brute creation which is a peculiar and honourable characteristic of all the Oriental, or, at least, of all the Mahomedan nations. Cruelty, indeed, in general, is no attribute of the eastern people, whatever may be supposed to the contrary. It is true, that their princes and great men have not usually proved themselves very scrupulous concern-

ing the shedding of human blood; but they have generally contented themselves with the lives of their victims, without subjecting them to deliberate cruelty, or protracted sufferings, like some of the more civilized and christian nations of the west.

The *Crested Purple Heron*, (*Ardea Purpurea*, Linn.) is a very handsome bird. The *Ardea Purpurata* of Gmelin, *Purple Heron* of Latham, seems to be the young; as are also the *Ardea Caspica* of Gmelin, and the *Ardea Monticola* of La Perouse. Figures of the same bird may be seen in the German Ornithology of Borkhausen, and in the work of our countryman Lewin, under the name of the African heron.

The first of these writers attributes to the male only the elongated feathers which fall over the neck, and in his account of the manners of this bird, says, that it is not less fearful, nor suspicious, than the other species of the same genus. The length, however, of its wings, occasions some impediment to the promptitude of its retreat, and obliges it to seek out some little eminence, where it may extend them and take its flight. The German author also observes, that it does not arrive at very considerable elevations, but by wheeling about, and that it does not sustain itself in the air, hovering in an insensible motion, like the eagle or the stork, but that it keeps its wings in perpetual agitation.

This species inhabits, for a longer time, the environs of the Caspian Sea, of the Black Sea, the marshes of Tartary, and the banks of the Irtisch, without passing the fiftieth degree of north latitude, than the borders of the Rhine, where, however, it remains during the summer only, without nestling. Fowlers are enabled to destroy it only by means of ambuscades. Its flesh, hard and insipid, has a marshy flavour; and its excrements, white and caustic, is very offensive.

According to M. Temminck, this heron, which are found in Italy, France, and Holland, is more numerous in the south, and towards the confines of Asia, than in the north. It

makes its nest in reeds or coppice woods, rather than on trees; and the female lays three eggs, of a greenish-ash, which are figured in the work of Schinz, pl. 1, no. 4.

In the subdivision of the *Crab-eaters* comes first, the *Blongosi, (Ardea Minuta et Danubialis*, Gm.) The *Little Bittern* and *Rayed Bittern* of Latham is considerably smaller than the preceding species. It is not very common in France, arriving there only when the grass in the meadows is high enough to afford it shelter. It appears to be rather more common in Switzerland and Holland; but in England and Germany it is merely a bird of passage, and but seldom seen. Its ordinary aliment consists in very small fishes, tadpoles, insects, and worms. M. de Riocourt says, that at the season of reproduction this bird utters a cry similar to the barking of a large dog, and that it attaches its nest to elevated rushes, like the reed-warbler, *(Turdus Arundinaceus.)* According to this observer, the four eggs which the female deposits are greenish, and spotted with brown; while M. Temminck says, that the eggs are white, and five or six in number; and that they are also represented of this colour by Schinz. Similar differences between naturalists, on points of similar difficulty and importance, we have had occasion to remark before.

The *Crab-eater of Mahon*, to which, as may be seen by the text, a number of synonymes, given as of distinct species, are referable, is common towards the confines of Asia, in Turkey, in the Archipelago, in Sicily, and in Italy. It is a bird of passage in the South of France, in Switzerland, and in some of the southern parts of Germany; but it never appears in the north. It nestles on trees, and feeds on small fishes, insects, and shell-mollusca.

Of the EGRETS,

The *Little Egret (Ardea Garzetta)* is figured by Donovan among our British birds, and by Graves. It is, however, very scarce in this country at present, though it was once so

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C. Hamilton Smith Esqr del.^t

RED NECKED HERON.

London Published by G.B. Whittaker, Nov. 1828.

AGAMI HERON.

plentiful, that no less than one thousand of these birds are mentioned in the list of Archbishop Nevill's famous feast. It most usually inhabits the confines of Asia, and is tolerably numerous in Turkey, in some parts of Italy, in the Archipelago, in Sardinia, and Sicily. But it is only a bird of passage in the south of France, in Switzerland, and in Germany. It nestles in marshes, and lays four or five white eggs.

The *Agami Heron* is a magnificent bird, whose specific characters are inserted at page 341. It is more than two feet and a half in length ; and inhabits Cayenne and Surinam.

The *Great Egret (Ardea Egretta)* is a bird of Europe and the old world, though it has been specially termed the American Egret. The young is the *Ardea Alba* of Gmelin, and the *Heron Blanc* of Buffon.

This species is said to be very common in Asia, in the north of Africa, and in North America; but M. Temminck assures us that it is the same which inhabits Hungary, Poland, Russia, and Sardinia. Its passage is only accidental in some parts of Germany, and it is not seen in the more western countries. Its food consists of frogs, lizards, small fishes, snails, and aquatic insects. It nestles on trees, and lays four or six eggs, of a pale blue.

Our figure of the Red-necked Heron is probably from a variety of the Blue Heron of Latham. The head and neck, with the two elongated narrow feathers, are brickdust-colour; the bill is blue, and the rest of the bird slate-coloured.

The voice of the *Common Bittern* (*Ardea Stellaris*), which resembles the bellowing of a bull, and which resounds from the midst of reedy marshes, has acquired for this bird the appellation of *Bos Taurus*. But it must not be confounded with the *Ardea Botaurus* of Gmelin, which, according to M. Temminck, is an old male of *Ardea Purpurea*, above noticed.

The common bitten is about two feet and a half, or rather more, in length. The female does not differ very sensibly

from the male, though some authors say that her size is less, her colours more dull, and the feathers of the head and neck are shorter. Neither are the differences in the young very strongly marked.

The names of *Stellaris* and *Asterias*, given to this bird by the ancients, appear to be derived from its flight,—which every evening it appears to direct towards the stars,—rather than from the spots upon its plumage, which are arranged in pencils, rather than star-wise. Wilder than the heron, it remains during the entire day in marshes of a certain extent, which abound in rushes, and near ponds surrounded by woods, where it places its safety in retreat and inaction, taking care, from time to time, to raise its head above the reeds, to examine what is passing around it, without being perceived by the fowlers. Its only movement is that of occasionally darting on the frogs, or small fish, which make their appearance before it. In autumn, however, it is said to proceed into the woods to hunt rats, which it catches very dexterously, and swallows entire.

The astounding voice of the bittern appears to be a cry of appeal, which is frequently heard in the months of February and March, and is intended to make known to the female, who is habitually distant, the place in which the male is concealed. It is said that the females of this species are more numerous than the males; and that the former often come to the latter in considerable numbers. But such facts are very difficult to be accurately known respecting birds of so distrustful a character. The cry, however, above-mentioned, cannot be merely the expression of amorous desire, for it is heard at the period of the harvest, and, consequently, long after that of reproduction.

The bitterns make their nest in the month of April, in the midst of reeds, upon a tuft of rushes. The eggs are four or five in number, of a green ash-colour. The incubation lasts twenty-four or twenty-five days, and the young ones are

reared in the nest for twenty days longer. Their first feathers are red, like those of the old. The father and mother defend them vigorously against the buzzards; and to repel the attacks directed against themselves by birds of prey, they await their approach in a standing posture, and soon force them to retire by violent blows of the pointed bill. When a bittern is wounded by a fowler, the latter should approach with great caution, for the bird will direct the strokes of his bill against the eyes, and even the boots cannot secure the legs from his assaults.

The flesh of the bittern is only eatable when the skin is removed. If the latter be left, it will communicate, in the cooking, to the entire body the strong marshy odour with which it is impregnated.

Bitterns are tolerably plentiful in all countries intersected by water, and are found every where, where there are marshes, sufficiently large to serve them for a retreat. They are by no means rare in France, in England, and in Switzerland. They are also found in Silesia, in Denmark, and in Sweden. But as tranquil waters are necessary for them, and as they do not seem to seek out springs, long-protracted frost must be a season of exile for them from their favourite haunts in the more northern regions.

The *Night Heron (Ardea Nycticorax)* has no relation with the raven, though its Latin denomination of *Night Raven* would seem to indicate that it had. This name has been given to it in consequence of the hoarse and lugubrious croaking which it utters during the night. According to Belon, its old French appellation, *roupeau*, is derived from its supposed habit of nestling in rocks.

This bird, which equally frequents the sea-coast, the banks of rivers, and of lakes, and the marshes covered with reeds, &c., is more common in the south than in the north of Europe. But it is every where more rare than the common heron. The same species is also found in North America,

in various countries of Asia, such as China, and the shores of the Caspian Sea.

The night-heron seeks its food partly on land, and partly in the water. It consists of crickets, slugs, frogs, fishes, &c. This bird remains concealed during the day, and never puts itself in motion until the approach of night, when its peculiar cry is heard. It fixes its nest, as would appear, according to circumstances, in the holes of rocks, on elder-trees near marshes, or on bushes. The female lays three or four eggs, of a dull green, according to M. Temminck, and whitish according to Sepp.

We now arrive at the third tribe of the family of the Cultirostres, namely, the STORKS (CICONIA.)

In addition to the characters given in the text, we may state, that the storks are large birds, whose eyes are surrounded with a naked skin, their neck elevated, the beak long, the legs partly denuded of feathers, and very long, the wings broad and vigorous, covering the tail, and the tongue very short and triangular.

The storks are found in Europe, Asia, and Africa, and some even in America. They have no cry, and the only noise they make is the clattering together of their broad and light mandibles, the edges of which exhibit asperities, and do not close well except towards the point. When the animal is irritated, or agitated by any strong impression, it turns the head round so as to plant the bill almost parallel with the back. Then the two mandibles strike against each other with great force and quickness, and this clattering, which diminishes in proportion as the neck is raised, ceases altogether when that has assumed its natural position. The ancients employed the imitative words *crepitat*, *glotterat*, to express this noise, which Petronius calls a noise of cymbals (*crotalum*), and it has occasioned the stork to receive the epithet of *crotalistria*.

The movements of the storks are slow, their steps long and

measured. Like the other grallæ, they carry the foot forward simultaneously with the leg, and this sort of locomotion is owing to a peculiar system of articulation. To the same mechanism the storks are indebted for the faculty of sleeping upon one leg, holding the other bent, and often even suspended rectangularly. In their flight, which is powerful and sustained, they carry their head stiff in front, and their feet, stretched backwards, answer the purposes of a helm. Marshes, meadows, and shores are their habitual sojourn, and fishes, reptiles, small mammifera, previously triturated and macerated, worms, and insects, constitute their ordinary food.

Of all birds which frequent the sea-shore and the banks of rivers, the storks are the best known, and the *White Stork (A. Ciconia)* is more celebrated than any other, and merits this distinction by its moral qualities, and the services which it renders to mankind. Its manners and habits present a perfect contrast with those of the black stork, which is wild and savage, seeking out deserts and morasses remote from every habitation, concealing its nest in the depths of the forest, and delighting in the solitude of naked rocks and cloud-capped mountains. The white stork, on the contrary, appears to have been born the friend of man; it partakes his dwelling, fixes its abode upon his house, nestling on roofs and chimnies, seeks its food on the banks of the most frequented rivers, hunts in our fields, and in our very gardens, and, unterrified by the tumult of towns and cities, establishes itself on their towers and lofty buildings, where it is universally respected and universally welcome. In Holland, it is peculiarly protected, and it merits this protection by clearing the marshes and humid valleys of that country of lizards, serpents, frogs, toads, and other reptiles. But the Hollanders are not the only people who respect the storks; the Vaudois, impelled by the same motive, namely, the great utility of these birds, fear to make any attempt on their lives, and hold them in veneration. The Arabs regard the storks as a guarantee

of their own welfare and that of their family; and to violate the rites of hospitality to their winged guests, is considered as no small crime in the eyes of those *barbarians*. Among the Turks, and the Orientals generally, the stork is looked upon as a sacred bird, and its destruction rigorously prohibited. From the letters of Lady Mary Wortley Montague, we learn, that they are so much under the protection of the authorities at Constantinople, that they nestle on the ground, in the streets of that city. But they are not so bold in the countries of Christendom, where they prefer the most elevated positions on which to establish their domicile. The Mahomedans call the stork *bel-arje*, and it is nearly as sacred among them as the ibis was among the ancient Egyptians. Even to disturb them, and much more to kill them, would be regarded as a terrible profanation. In ancient Thessaly, the penalty of death was annexed to the murder of any one of these birds, so precious were they to that country for their destruction of the serpent race. Among the Moors they owe their security to a religious feeling, for that people believe that, at the prayer of Mahomet, God transformed into these birds a troop of Arabs who were robbing the pilgrims of Mecca.* In Barbary, the great resort of the storks is the valley of Moukazem, where, it is reported, they are more numerous than the inhabitants. The eaters of them, among the ancient Romans, were exposed to the raillery of the people.

The natural disposition of the white stork is very gentle; it is neither wild nor distrustful, is easily tamed, and will live in our gardens. It would appear that it has some ideas of cleanliness, for it will chuse a remote and hidden place in which to deposit its excrements. Although its phy-

* This appears rather strange. One might imagine that such a notion would contribute to any thing but the security of the storks. But there is no accounting for the whims of superstition. "*Non* insanire parat certa ratione modoque."

siognomy is mournful, and even melancholy, it will at times exhibit a sort of gaiety. It has been observed to mingle in the sports of children, and, yielding itself to their playfulness, to discover, in such amusements, proofs of intelligence. Gratitude, conjugal fidelity, filial and paternal piety, are moral qualities which have been attributed to this bird, and some facts, indubitably appear, to a certain extent, to support the affirmative of this question. The stork has been observed to shew marks of attachment to the hosts who have received it, and permitted it to occupy an asylum near their dwelling. It has even been asserted, though we think with some improbability, that these birds clatter with their bills, in passing before the doors of their former entertainers, to advertise them of their return, and in parting give a similar signal of farewell. Their constancy, however, in returning annually to the same places, is well known. Equally well known are the signs of joy, and the caresses, which pass between the male and the female, when they have arrived on their nest after a long voyage. The suspicion or appearance of infidelity, will sometimes cost the female her life; for if the eggs of a hen be put into the nest,—a not unfrequent amusement in the neighbourhood of Smyrna, where a great number of storks nestle,—as soon as the chickens are disclosed, the male, on beholding these strange beings, sets up a tremendous noise. This attracts a multitude of other storks, who proceed immediately to despatch his companion with violent blows of their bills, while she utters the most lamentable cries.*

The stork has an amazing affection for its young. It feeds them for a long period of time, and never quits them, until they have completely acquired the power of providing for themselves. When they commence to flutter about the

* For the truth of this we cannot vouch; it is in contradiction to the probable fact, that the stork utters no cry.

nest, and to make their first essays of flight, the mother will carry them on her wings, defending them in all dangers; and she has been known, when unable to save them, to prefer perishing with them, to abandoning them. An attachment of this kind once occasioned the death of a stork, at Delft, in the burning of that city. Having made many useless endeavours to carry off her young, she remained, and perished with them in the flames. This maternal virtue is by no means uncommon in many other birds; but what peculiarly characterizes this species, and undoubtedly exalts it above others, is, the filial affection of the young for their parents. The young storks lavish the most tender cares on their parents, when the latter are old and feeble, bringing them food when they are in a languishing state, from age or malady. This touching instinct, thus implanted by nature in the heart of brute animals, has not escaped the observing eye of the ancients. A law among the Greeks, obliging children to support their parents, even received its name from a reference to these birds. The respect universally paid to them in ancient times, amounting with the Egyptians even to worship, and in modern times extending at least to their comfort and protection, has arisen altogether from the opinion entertained of their moral qualities and amiable disposition. Among the Romans, the appearance of a stork in their auguries signified union and concord. Its departure, in any calamity, was deemed a most fearful and fatal presage. This prejudice was so rooted, that Attila continued the siege of Aquileia, which he was about to raise, because he had beheld some storks flying from the city, and bringing away their young along with them. In the language of hieroglyphics, the stork was the symbol of piety and beneficence, virtues which are expressed by its name in the Hebrew tongue, חסידה. It is also an emblem on the medals of such Roman princes as merited the appellative of *pius*.

By the assistance of its powerful and continuous flight, the

stork is enabled to rise to a very considerable elevation in the air, and to make very long voyages, even in stormy weather. These birds return to Alsace about the end of February; they appear in Switzerland in the month of March, arrive in Germany in the earliest days of May, and everywhere their appearance indicates the return of Spring. Each couple constantly returns to the same places to reproduce, and build their nests. If the old nest remain, they occupy it; but if it be destroyed, they reconstruct one, with slender twigs, rushes, and water plants of various kinds, which they accumulate in great quantities. They usually place it upon eminences of some kind, on the battlements of towers, and sometimes on the summits of the largest trees which overhang the waters, or at the point of a precipitous rock. Everywhere the stork prefers such points of position as command the entire neighbourhood, and do not allow of a view into its nest. In Lorrain, Alsace, and particularly in Holland, these birds nestle on the tops of the houses, and the inhabitants provide boxes for their accommodation. The eggs are never more than four in number, and often only two; of a yellowish dirty white, a little less bulky, but more elongated than those of the goose. The male sits upon them, while the female goes to seek her food. In about a month the young are excluded, and then the activity of the parents is redoubled to procure and bring sustenance to their growing family. They fill their œsophagus and stomach with food, which they disgorge to the young, who receive it, rising up and uttering a hissing noise. Both parents are never away from the nest together. While one is engaged in hunting, the other remains in the neighbourhood, standing upon one leg, with an eye always to the young. The latter, in their early age, are covered only with a brown down; and being, as yet, without sufficient strength to support themselves on their legs, which are very slender, they trail themselves in the nest on

their knees. When the wings begin to grow, they exercise themselves in hovering above the nest; but it frequently happens that some of them fall, and are unable to rise again. To accustom them to fly, and to venture themselves in the air, the mother exercises them in little circular flights around the nest, leading them about, and bringing them back to their habitation.

It is said that the storks, notwithstanding the facility with which they are tamed, do not multiply in a state of domestication, even though they be left in entire liberty, placed in large gardens, situated at the edge of a river, and planted with lofty trees, and though they receive suitable food, in sufficient abundance.

When the white stork sleeps, or, without sleeping, is in a state of rest, it remains on one foot, with the neck folded, the head turned backwards and couched upon the shoulder. Not unfrequently in this position does it watch the reptiles destined for its prey, on which it fixes a piercing eye. Its style of walking is the same as that of the crane—in measured paces—carrying, as we have noticed above on the genus, the entire leg and foot forward at once, which gives it the appearance of being mounted on stilts. Its tongue is short, and concealed at the entrance of the gullet. It swallows its food by a kind of jerk of the bill, which carries it at once into the throat; but when the animals on which it preys are too bulky to be managed thus, it triturates and macerates them in the bill for a good while previous to deglutition.

The season for its departure from its more northern habitat is towards the end of August. Previously to their passing from one country into another, all the storks which inhabit a certain district are accustomed to assemble in a plain, for some little time, once a day. When the assembly is complete, a great clattering of the bills is heard, the members appear to seek out and recognize each other, and take counsel for their departure, the signal for which, in our European

climates, is the north wind. But these assemblies, at times, do not take place without tumult, nor even without fighting. When the moment of setting out is arrived, all the birds arise together, and are soon lost sight of in the cloudy heights of the atmosphere. This departure is the more difficult to be observed, inasmuch as it takes place in silence, and often in the night. Unlike the clamorous cranes, and wild geese, no cry, no noise of any description, announces the flying troop. Like well disciplined warriors, they proceed in order and in silence, while the others, just mentioned, have been often compared, not unaptly, by the poets, to tumultuary hordes of barbarians, rushing to the combat, or retreating from the victorious foe.

In all probability, it is not the cold which determines the migrations of the stork. Those which are retained in a domesticated state, are exposed to all vicissitudes of weather, without appearing to suffer any detriment. These birds, more likely, travel for the purpose of procuring subsistence in greater abundance, or more suitable to their taste. Egypt and Barbary appear to be the southern countries to which they principally retire; for in autumn, and during winter, the plains of those countries are covered with them. However, all the storks do not quit Egypt even in the summer. Sonnini has frequently met with them in the months of June and July, in the environs of Thebes, and in Upper Egypt, during the midst of summer; but then they are not to be seen in the northern parts of that kingdom. They advance pretty far in the northern hemisphere, for they are found in Sweden, in Russia, and in Siberia. They also inhabit throughout all Asia, even as far as Japan, where, as in Egypt, they are stationary; but in all countries, they avoid deserted, dry, and barren grounds, where they could not possibly exist.

In this country, the white stork is a very rare bird. Pennant takes no notice of it. Montague mentions one killed at Sandwich, in Kent, in 1805, and another in Hampshire

in 1808. The storks are also said to be rare in Italy at present. Lorraine and Alsace are the countries, in France, where they are most numerous. Many of them even remain there permanently, especially in Lower Alsace, where they fix their nests on belfries, &c. They pass into the Vosges of Lorraine in September, as well as in March and April, in flocks of from ten to twelve, frequent the humid meadows, and retire in the evening on the most elevated trees on the borders of woods. The hunters, then, who have observed their course, proceed to surprise them. It is said that many of them may be killed in succession, on the same tree, before the band will retire. As M. Vieillot well observes, no advantage results from this wanton sport, for their flesh is not worth eating, and, therefore, rigorous prohibitory laws ought to be enacted against it, as tending to the extirpation of a species of great utility, and no possible detriment, to man.

It appears that in the rainy and cold summers the white storks quit the countries which they generally inhabit during this season, rather than at any other time, for in the midst of the summer of 1817, a prodigious number of them assembled not far from Ulm, and departed as they are accustomed to do in autumn. The same thing was observed in the same summer at Rouen, but they were few in number, and are, in fact, generally very scarce in that part of France. It has also been remarked, that to some places they come a second time, and have a second brood, which, according to the testimony of the most aged and experienced persons, denotes a fine after season.

Mauduyt, in the "Encyclopédie Méthodique," tells us a fact, which shows how much these storks require perfect liberty in the business of incubation, and in the rearing of their young. Having brought from Alsace a male and female, and placed them in a very large garden, crossed by several arms of the Seine, he easily tamed them. This couple lived there for many years without appearing to suffer from

cold, and without seeking any change of climate either in spring or autumn, although they were habituated to make pretty long circuits in the air. This proved that emigration is not a matter of indispensable necessity with individuals of this species, when they are supplied with sufficient food, adapted to their constitution. But this couple could not be induced to multiply, though they were surrounded with very lofty trees and buildings, on which they might have established their nest.

M. Hermann, of Strasbourg, has given us, in his "Observationes Zoologicæ," several curious facts respecting the storks. Some persons, near whose habitations several couples had fixed their nests, informed him, that the male seemed to be larger and stouter than the female. These birds used to occupy themselves, by moonlight, in seeking out the necessary materials for the construction of their nests. The same naturalist also had in his possession a tame stork for a long time, and thus was enabled, personally, to make many interesting observations on its habits. On the approach of a great dog, or on any other occasion productive of the sentiment of fear, this stork used to utter a sort of hissing noise, elongating the neck, and swelling the throat, after the fashion of geese. In cold weather, it did not hesitate to plunge its feet in water, and it would remain entire days exposed to the rain. When the thermometer was ten degrees below the freezing point, it would sprinkle its belly with the water, with which it had filled its bill. Notwithstanding this, when water was thrown upon it, although in fine weather, it shook it off immediately, with as much haste as possible. It would often remain in the place where it passed the night, resting upon its knees, with the head upright, and even assume this attitude on the pavement, contracting its toes in such a manner as to make them form an angle, which elevated the tarsus, and hindered it from touching the ground. It fed on worms, mollusca,—whose shells it first broke—

oysters, crabs, spiders, and the larvæ of insects. It evinced the greatest possible avidity for cheese, and an equal repugnance for butter. After having swallowed rats, it returned them entire, and shewed no desire for any more of them. It also refused phalænæ, leeches, the eggs of lizards and salamanders. This stork allowed itself to be touched and caressed by the children, and when driven out of any place, it would retire, without resistance, but with a grand step, and elevated head.

The *Black Stork (Ciconia Nigra)* is, in many points of its disposition, as different from the preceding species as it is in its colour. Solitude appears to have peculiar charms for this bird. It flies the busy haunts of men, and the hum of population, and retires to distant marshes, and lonely wastes of waters. It fixes its nest in the depth of the woods, on old trees, particularly fir-trees, and deposits there two or three eggs, of a dirty white, shaded with greenish, and sometimes having a few brown spots. It is common in the Alps of Switzerland, from which it descends to the banks of lakes, the least frequented, to watch its prey, hovering over the waters, and sometimes plunging in to seize its victim. Fish, however, is not its only food, for it seeks the mountain herbage, snails, reptiles, scarabæi, and grasshoppers. Its flight is very elevated, and it rises to such a height in the air as to appear no larger than a sparrow. This species, less numerous and less extended than the white stork, seems to shun the haunts frequented by the latter, and to adopt in preference those countries which it does not visit. It is found, but rarely, in Poland, in Prussia, and several other parts of Germany, and even in Sweden. It is very frequent in Switzerland, but very scarce in Holland, which is the favourite country of the white stork; like the latter, it is also an emigrating bird, and removes when frost and snow deprive it of food. It is on the occasion of such migrations that it is seen in Lorraine,

for it can only be considered as a bird of passage there. There is but one appearance of this bird recorded in this country. It was slightly wounded, and then taken alive at Stoke St. Gregory, in the county of Somerset, on the 13th of May, 1814, and conveyed to Mr. Montague. Though a very wild bird, and habituated to frequent only the most desert marshes, it has occasionally been tamed to a certain degree. It presents, however, no resource for the table, for its flesh has a disagreeable fishy flavour.

The *Gigantic Crane* of Latham, (*Ardea Argala et Dubia*), belongs to this genus. This bird, which lives in flocks at the mouths of rivers in Bengal, is also found in the southern parts of Africa, where it subsists on testacea, reptiles, fish, and even mammalia, whose bones it triturates before swallowing, and digests without difficulty. It is venerated in the countries which it inhabits, from its destruction of serpents and pernicious reptiles. In captivity its gluttony renders it omnivorous, and it is easily tamed.

This enormous bird has a majestic walk, and at a distance bears some resemblance to a naked Indian. It is called by the Anglo-Indians the *Adjutant*, from a fancied resemblance to a man in a white waistcoat and breeches at a distance, and possibly from the erectness and stiffness of its gait. The natives believe these birds to be the receptacles of the souls of the Bramins, and deem them to be invulnerable. Mr. Ives mentions, in his "View of Hindostan," that when he missed his shot at several of them, the standers by greatly exulted, and declared that he might shoot at them for ever without succeeding.

From the circumstance of its swallowing bones, this stork is also called the bone-eater, or bone-taker. In confirmation of its voracity, it is recorded that a land tortoise, ten inches long, was found in its craw, and a large male black cat, entire, in the stomach.

Mr. Smeathman, during his residence at Sierra Leone,

made several interesting observations on this bird, which he communicated to Dr. Latham. "After saying that an adult will often measure full seven feet, he adds, that the head covered with white down, thinly dispersed, appears not unlike a grey-headed man. Also, that they are met with in companies; and when seen at a distance, near the mouths of rivers, coming towards an observer, which they often do with their wings extended, may well be taken for canoes upon the surface of a smooth sea—when on the sand-banks, for men and women picking up shell-fish or other things on the beach. One of these, a young bird about five feet high, was brought up tame, and presented to the chief of the Bananas, where Mr. Smeathman lived; and being accustomed to be fed in the great hall, soon became familiar, duly attending that place at dinner time, placing itself behind its master's chair frequently before the guests entered. The servants were obliged to watch narrowly, and to defend the provisions with switches; but, notwithstanding, it would frequently seize something or other, and once purloined a whole boiled fowl, which it swallowed in an instant. Its courage is not equal to its voracity, for a child of eight or ten years old soon puts it to flight with a switch, though at first it seems to stand on its defence, by threatening, with its enormous bill widely extended, and roaring with a loud voice like a bear or tiger. It is an enemy to small quadrupeds, as well as birds and reptiles, and slyly destroys fowls or chickens, though it dares not attack a hen openly with her young. Every thing is swallowed whole; and so accommodating is its throat, that not only an animal as big as a cat is gulped down, but a shin of beef broken asunder serves it but for two morsels. It is known to swallow a leg of mutton of five or six pounds, a hare, a small fox, &c. After a time the bones are rejected from the stomach, which seems to be voluntary, for it has been known that an ounce or two of emetic tartar given to one of these birds produced no effect."—(Lath. Gen. Hist. Vol. IX. pp. 40-41.)

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GIGANTIC CRANE.

CICONIA MARABOU.

Mus. Gen. Hardwick.

London Published by Whittaker & Co. Ave Maria Lane. Oct. 1829.

The Doctor adds that it is equally fond of putrid carcasses as the vulture, for groups of both birds collect together over a dead body, never leaving it until the bones are completely picked. In Calcutta, where the kites and crows are great scavengers, consuming all the remains of animal food which the prejudices of the natives will not allow them to touch, they are assisted in their operations by the adjutant in the day-time, and at night by the foxes, jackals, and hyænas.

Our figure is from General Hardwick's drawings, and the specific characters by Cuvier will be found at page 350.

The *American Stork* (*A. Maguari*) was originally described by Marcgrave, and afterwards by Azara, under the name of *Baguari*, which it bears in Paraguay, where it is also known under those of *Embaguari* and *Tuyuyu-guazo*. This bird is not very wild, and the individuals of the species are usually met with in pairs in Paraguay, and to the south of the river Plata, where they sometimes assemble in flocks. They fly to a great height in the air, and seldom perch on trees. They nestle towards the end of the year, and the young ones are of a blackish-brown above, and white under the belly. When these birds are born in houses, they become so tame that after having traversed the fields and marshes they constantly return at the precise hour at which they are accustomed to receive their food.

The JABIRUS (MYCTERIA) are not considered by Illiger and Temminck, as forming a distinct genus from the storks; and the second of these writers imputes to erroneous figures the particular character of the jabiru, namely, the curvature of the bill upwards, which, according to him, is as straight as that of any stork. But Marcgrave, the first naturalist who has mentioned this bird, describes this generic character in very express terms: for of the *Jabiru Brasiliensis* he says, "rostrum directe extensum, et *superius versus extre-*

mitatem paulum incurvatum;" and the figure which he gives accords with this description. He even places this circumstance in opposition to the form of the bill in another bird, (the *Ibis Nandapoa*, Vieill.) in which the bill is curved downwards, "*rostrum inferius incurvatum.*" Accordingly, Linnæus, Latham, Lacépède, and other ornithologists, have not hesitated to form a separate genus of this bird, under the name of MYCTERIA, giving as the principal character this slight recurvation of the bill upwards. It is not, however, very sensible, especially in the younger birds, except at the lower mandible, which is thicker than the upper, which is triangular; but in proportion as the bird grows old, the bill assumes a greater curvature. In other respects, the characters of the jabirus resemble those of the storks. The nostrils exhibit but a single longitudinal and narrow cleft; the tongue, inclosed in the gullet, is so very short that Marcgrave thought that it was altogether wanting; and, singularly enough, Linnæus has adopted a similar supposition. The head and neck are more or less divested of feathers; the legs are reticulated; the three anterior toes are united at their base by a membrane, and the hinder one rests upon the ground in its entire length.

The *American Jabiru* (*Mycteria Americana*) is described by Azara under the name of *Collier Rouge*, and is also called in Paraguay *Aiaiai*. It also inhabits Brazil, where it is named *Jabiru Guacu*, and is found in some other parts of South America. It is the *Negro* of the Hollanders, and the *Touyouyou* of the native tribes of French Guiana. It is one of the largest and strongest of shore-birds. It is mounted on very high stilts, and its body is as bulky and more elongated than that of the swan. The skin of the neck is wrinkled, and so flaccid that it depends like the dew-lap of a cow. This circumstance has given rise to the name of *Jabiru*, which in the language of the Guaranis signifies any thing

inflated by the wind. The legs, very robust, are covered with large scales, and denuded of feathers for about the space of six inches.

The jabirus constantly inhabit the humid grounds of South America, and are found in considerable abundance in the inundated savannahs of Guiana. They never quit their sojourn but to rise slowly into the heights of the atmosphere, where they support themselves for a very long time. These birds are voracious, and live only on fish and reptiles. They construct, on lofty trees, with long branches carefully interlaced, a spacious nest, in which the female deposits but one or two eggs. The young are fed with fish until they are strong enough to descend from the nest, and are defended by the parents with great courage. This nest is said to serve for several broods.

The jabirus appear to be less wild in Guiana than in Paraguay. Bajon tells us that in 1773 a little negro contrived, by merely concealing his face with the branch of a tree, to approach a young one that had almost acquired its full growth, sufficiently near to seize it by the legs and catch it. The flesh of the old is hard and oily; but that of the young is tender, and tolerably good eating.

But one species of the UMBRE is known, which has been formed into a genus. The characters are—a bill thick at the base, longer than the head, compressed laterally, carinated above and below, with the upper mandible curving at its point, and covering over the lower, which is more narrow, and a little truncated; linear nostrils, which are prolonged in a furrow running parallel to the ridge of the bill as far as the end. The lower part of the legs denuded of feathers; the three front toes united by a membrane as far as the first phalanx, and the hinder one touching the ground in its full length; the first two remiges the shortest.

Of the only species, the *Tufted Umbre* (*Scopus Umbretta*), nothing is known respecting manners and habits.

The ANASTOMUS is separated from the foregoing genera only in consequence of the peculiar gape of the bill in the middle. There is nothing known concerning them, except that their habitat and food are similar to those of the herons, &c.

The figure of the *Laminated Heron* is from a specimen in the British Museum. The whole bird is dingy, nearly black; but the plumage has occasional green and purplish reflexions. The feathers of the neck, belly, and thighs have the stems continued beyond the bards, where they become cartilaginous laminæ. All the stems, as well as the laminæ, are very shining. Between the fissure formed by the two mandibles there are five close small laminæ, whose object appears to be to retain the slippery prey of the bird, such as eels, &c. in the bill.

All the TANTALI of Gmelin and Latham, with the exception of *Tantalus Loculator*, *Ibis*, and *Leucocephalus*, are ibides, according to our author. These birds are found in Asia, Africa, America, and Australia. They delight in inundated places, where they live on reptiles and fish. When they are satiated with food they retire on elevated trees, where they remain in an upright attitude, resting their bill upon the breast. They are simple birds; their walk is slow, and they may be shot with facility. They make their nest on trees; the female lays two or three eggs, and the young do not quit the nest until they are in a state to fly.

The *Tantalus Ibis* was for a long time regarded as the bird so much revered by the ancient Egyptians; but M. Cuvier, in a very learned and acute dissertation on the subject, has most satisfactorily demonstrated that the true ibis was a very different bird, of a much smaller size, and the same as the *Abou-hannès*, mentioned by Bruce.

The SPOONBILLS have received a multitude of names, some of which were very little suited to them; and one would think that the form of the bill was sufficiently characteristic

C. M. Curtis del.t

Griffith sc.

THE LAMINATED HERON.

ANASTOMUS LAMINIGERUS. Tem.

London Published by G.B. Whittaker May 1828.

to prevent such singular confusion. But there are some philosophers whose peculiar aim seems to be to render difficult that which is easy, and to make obscurity more obscure. The spoonbill has alternately been metamorphosed into a heron, a pelican, and even a woodpecker. The faculty of piercing trees has been attributed to it—whereas its bill, flexible and flat, is adapted only to cut the water, or grope in the mud.

These birds, when under the influence of fear or anger, produce a clattering with their mandibles similar to that made by the storks. They live in societies, not very numerous, in wooded marshes, not far from the mouths of rivers, and they often sojourn along the shores of the sea, to be enabled to seize the small fish and their spawn, fluviatile mollusca, little reptiles, and aquatic animals, on which they live, and which they bruise or retain by the assistance of tubercles, which furnish the interior of the two mandibles, and serve to break the shells or retain the slippery prey. They make their nest, according to localities, on high trees, on bushes, or among reeds. This nest is constructed with small wood, and the female lays three or four whitish eggs. Their moulting is but once a year; but the young bird does not assume the perfect livery of the adult until the third year. The tuft does not appear until the second.

The spoonbills are voyaging birds, not very wild, and show no aversion to living in a state of captivity. They are found in almost all the countries of the old world. In Europe they are seen but seldom in the interior parts, and are only passagery on some lakes or the banks of rivers. They frequent the marshy coasts of Holland, of Brittany, and of Picardy. They are also seen in Prussia, in Silesia, and in Poland, and in summer they advance as far as West Bothnia and Lapland. They are again to be found on the coasts of Africa, in Egypt, and at the Cape of Good Hope, where

ROSEATE SPOONBILL

PAJAJA.

Published by Whittaker & Co. Ave Maria Lane. Jany. 1830.

they are called *Slangen-wreeter*, that is, serpent-eaters. Commerson has seen them at Madagascar, where the islanders give them the name of *Funguli-am-bava*, which means spade-bill. The negroes in some districts call them *Vang-van*, and in others *Vourou Doulou*, or birds of the devil. They have been found in the island of Luçon by Sonnerat.

The *White Spoonbill* (*Platalea Leucorodia*) is an occasional, but rare visitor of this country. They rise very high, and fly in waving lines. Their flesh is tolerably good eating, and is destitute of the oily taste which is peculiar to most shore birds.

The *Roseate Spoonbill* is an American species, and is the *Ajaja* of Brazil (Marcgrave), and the *Tlauhquecul* of Fernandez, and the *Guirapita* of the natives of Paraguay. Its dimensions are not so great as those of the spoonbill of the ancient continent. The plumage, in general, is of a beautiful rose-colour, while the upper part of the wing and the tail-coverts, are of a lively-red. Age, however, operates the same changes of colour in these spoonbills, as in the red curlew, and in the flamingo, which in their first years are almost completely white or grey. The bill and its membrane are of a yellowish-green, which becomes white when the bird is terrified. Azara has frequently met these birds in the lagoons, up to the knees in water, busily employed in catching small fish.

This spoonbill, says Ulloa, in his Philosophical Memoirs on America, employs in fishing a method sufficiently singular; it makes a semi-circle, with its bill, around it, on either side, and employs it with so much dexterity, that no small fish can escape.

We now come to the family of the LONGIROSTRES; the first of which are the birds of the great genus SCOLOPAX, beginning with the subdivision of the IBIS.

Why this subgenus should be separated from Tantalus,

a. One of the large wing coverts.

The sacred Ibis of the Egyptians.

Published by C. B. Whittaker & Co. Ave Maria Lane Jan.ʸ 1830.

one third the natural size.

ROYAL ASIATIC SOCIETY BOMBAY BRANCH LIBRARY

will sufficiently appear by a reference to the characters given in the text. Australasia is the only part of the world in which the ibides are not found. These birds frequent the borders of rivers and lakes; they are not, as Herodotus and other ancient writers have asserted, the destroyers of serpents and venomous reptiles. Insects, worms, fluviatile, and univalve shell-mollusca, and sometimes small fish, constitute their only aliment. The majority of them nestle on large trees, and they rear their young ones in the nest, until the latter are in a state to be enabled to fly.

It is only since the publication of Bruce's Travels, that positive notions have been gained respecting the genus to which we should refer the bird which was so venerated by the Ancient Egyptians, and which they used to embalm after its death. The ibis of Perrault and Buffon has since been recognized for a tantalus; that of Hasselquist for a heron, perhaps the same as the ox-bird of Shaw; and that of Maillet, (*Pharaoh's Chicken*, *Rachamah* of the Arabs,) for a vulture, *Vultur Percnopterus*, Linn. But Bruce found in Lower Ethiopia a bird which is there named *Abou-hannès* (Father John), and on comparing it with the embalmed individuals, and with the ancient descriptions, he recognized it to be the true black and white ibis, with reflexions on several parts of the body, and the same as the *Mengel* or *Abou-mengel* (father of the sickle) of the Arabs.

This fact has since been fully confirmed by M. Cuvier, by an examination of mummies brought from Egypt by Colonel Grobert and M. Geoffroy, and from other mummies by M. Savigny, who also found in Egypt the very bird itself, and had an opportunity of examining it in the living state. M. Cuvier's memoir on the subject was first inserted in the Annals of the French Museum; and in the "Ossemens Fossiles," with a figure which we have copied. M. Savigny has published a natural and mythological history of the same bird.

These two works have powerfully contributed to clear up points of natural history, left in such a state of obscurity for so many ages; but there are some things on which these philosophers are not agreed, and more particularly on the question relative to the causes of the veneration of the Egyptians. M. Cuvier having found in the mummy of an ibis the undigested remains of the skin and scales of serpents, concluded that these birds in reality fed upon those reptiles. M. Savigny, having never found any in the stomach of such individuals of the present time as he dissected, came to a contrary conclusion, which seemed to him to be substantiated by the natural habits and organization of the ibis, confirmed by analogy, and further corroborated by the testimony of the modern Egyptians. He does not, indeed, attempt to deny the fact stated by the Baron; but he observes, that it is an isolated one, and that the learned professor does not specify the exact position of the debris of serpents, of which he speaks. M. Savigny adds, first, that, according to Herodotus, before the Egyptians proceeded to embalm an ibis, they removed the intestines, which were reputed to be excessively long; secondly, that he has himself found in the interior of one of these mummies, no remains of viscera and soft parts, but a multitude of the larvæ or nymphæ of insects of different species; thirdly, that moreover certain species of serpents were reckoned among the sacred animals, and that mummies of such serpents have been discovered in the grottoes of Thebes; fourthly, that many of the mummies of the ibis, which were taken from the repositories in the plains of Saccara, contained, under a general envelope, aggregations of different animals, whose debris alone were collected. We may remark also, that the remains of serpents mentioned by M. Cuvier, were not yet digested, which would naturally be the case under the supposition that they had not even been introduced into the alimentary canal.

When we consider the assertions of Herodotus, respecting

the supposed service rendered to Egypt by these birds in delivering it from serpents, we shall find that the chief stress is laid upon their antipathy for these reptiles, which they were said to combat and destroy; but their organization seems but little calculated to enable them to succeed in enterprises of this kind. Besides, the animals, which are wont to rid us of pernicious species, do so, not from a hatred and antipathy which they bear to such species, but rather from the pleasure which they experience in devouring and feasting on them. This, assuredly, is a distinction of some weight; it may also be remarked, that the food of animals is always the same, except in cases of dearth, which dearth is never wantonly created by the animals themselves. If serpents of any kind were the natural aliment of the ibis, instead of preventing them from penetrating into the country where these birds were destined to pass a portion of the year, the latter would rather follow them into the places of their retreat. We can easily conceive why birds of prey will chase other rapacious birds, less powerful than themselves, from such tracts as they have chosen for their own peculiar domain of hunting. But it is difficult to conceive how any animals would interdict the access to the country which they inhabit, to beings which were destined to serve them for the purpose of food. If we add to these considerations, the recollection, that sandy countries are the suitable habitat of serpents, while humid situations are best adapted to the ibis, we shall find fresh cause to reject the opinion of Herodotus, as fabulous. It could not, indeed, have been received with any great degree of confidence by his own countrymen, since the first naturalist of Greece has passed over in silence the antipathy of the ibis to the serpent, and their supposed combats. If Herodotus, who tells us that he had himself seen, on the confines of Arabia, and at the place where the mountains open on the vast plain of Egypt, the fields covered with an incredible

quantity of accumulated bones, instances these bones as the remains of reptiles destroyed by the ibis, when they were on the point of entering Egypt, it is merely a simple opinion which he gives upon a fact, which could not have originated from any such cause. These immense debris of fishes and other vertebrated animals, which, in the course of time, have been heaped up in some narrow place, afterwards abandoned by the waters, cannot possibly admit of such an explication of their origin, which is truly ludicrous, and could only have been adopted by this author, in consequence of the excessive credulity with which he was prone to swallow popular report. Such masses, moreover, would not have been preserved for any great length of time, had they consisted merely of the small bones of reptiles, incapable of making resistance against the attacks of birds so weak as the ibis.

We must, then, look for other reasons than the destruction of serpents, for the veneration paid to the ibis by the ancient Egyptians, who admitted it even into their temples, and prohibited the killing of it, under pain of death. In a country, where the people, very ignorant, were governed only by superstitious ideas, it was natural that fictions should have been imagined, to express with energy the happy influences of that phenomenon which every year attracts the ibis into Egypt, and retains it there. Its constant presence at the epoch of that inundation, which annually triumphs over all the sources of decay, and assures the fertility of the soil, must have appeared to the priests and the persons at the head of government admirably calculated to make a lively impression on the minds of the people, to lead them to suppose supernatural and secret relations between the movements of the Nile and the sojourn of these inoffensive birds, and to consider the latter as the cause of effects exclusively owing to the overflow of the river.

Besides the white and black ibis, another ibis, entirely

black, was equally reverenced in Egypt, and embalmed in a similar manner. This one is more elegant and slender than the other in its external form, and its internal organs are also more contracted. M. Savigny has opened about twenty individuals of this species, and has found nothing in their very narrow gizzard, but small fluviatile shells, with some debris of vegetables, which probably enveloped the shells at the moment in which they were swallowed, and cannot be considered as properly constituting any part of the aliment of these birds.

The two species have a powerful and elevated flight. In this action the neck and feet are extended horizontally, and from time to time, the birds, all together, send forth deep and hoarse cries, more powerful in the white ibis than in the black. When these birds alight on lands which they have newly discovered, they remain crowded against each other, and may be seen for entire hours, occupied in searching the mud with their bills, advancing slowly, step by step, and never springing with rapidity like the curlews. The ibis does not nestle in Egypt. Those of the white kind arrive as soon as the Nile begins to increase, and their number augments or diminishes, as do its waters. Their migration takes place towards the end of June, the epocha at which, according to Bruce, they arrive in Ethiopia. The black ibis, which comes later into Egypt, also remains there longer. The moment when the ibides retire with the waters of the Nile, is the time in which the hunters prefer to pursue them. They seldom shoot them with fire-arms, but lay nets for them; and during autumn, many, whose heads have been previously severed from their bodies, are found in the markets of Lower Egypt, especially in that of Damietta. Many of the ibides, both black and white, were brought alive to M. Savigny, who observed that they most frequently held their body nearly horizontal, with the neck inflected, and the head inclined—were in the habit of striking the earth with the end of their bill, and

sometimes resting on one foot only. The same naturalist remarks, that the white ibis sometimes goes alone, and sometimes in small troops of from eight to ten, while the black species, more numerous, forms flocks of from thirty to forty.

Having thus, in our general view, noticed the habits of the two species which visit Egypt, and which habits to a certain point are applicable to all, we have nothing to add respecting the sacred ibis (*Ibis Religiosa*) in this place. Of the other, which Belon has called the black ibis, and which is the *Green Ibis* (*Scol. Falcinellus*), we can only observe, that, like the white, it inhabits the banks of lakes and rivers. It nestles in Asia, but comes periodically into Egypt, and is a bird of passage in Poland, Hungary, Turkey, and the Archipelago. It also visits the banks of the Danube, Switzerland, and has been accidentally seen in Holland, and in this country. The plate of the *Black-faced Ibis* is from a specimen at the British Museum. Its specific characters are stated at page 362.

The *Scarlet Ibis* is a native of America. These birds live almost always in flocks, and the old ones most frequently form distinct and separate bands. Their flight is rapid and sustained, but they do not put themselves in motion, except in the morning and evening, for the purpose of seeking their food, which consists of insects, shell animals, and small fishes, collected in the slime along the sea-coast, or at the mouths of rivers. During the greatest heat of the day and at night, they remain in sheltered places. The broods commence in January, and are concluded in May. They deposit their eggs, which are greenish, in large tufts of grass, or on little piles collected in the brush-wood. These ibides are spread throughout the warmest countries of America, and being not at all wild, they are easily accustomed to live in houses. M. de la Borde mentions his having kept one for more than two years. It was fed with bread, raw or cooked meat, and fish; but it gave the preference to the entrails of fish and fowl. It would

Mus. Brit.

BLACK-FACED IBIS.

TANTALUS MELANOPS.

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frequently occupy itself in seeking for earth-worms around the house, or following the labours of a negro gardener. In the evening, this bird would retire of itself into a poultry-house, where it reposed in the midst of a hundred fowl. It would perch on the highest bar, awake very early in the morning, fly round the house, and sometimes proceed to the sea-shore. It would attack cats with great intrepidity. It would have lived longer, had it not been accidentally killed, by a fowler, who mistook it for a wild curlew, when it was on a pond. All this shows the possibility of rearing in the warm climates of Europe a bird which, according to the testimony of Laët, has already produced in a domestic state, and may, perhaps, one day be turned to good account.

The *Ibis Albicollis* or *Tantalus Albicollis*, is found in Cayenne, and is a little stronger than the European Curlew. It is also called *Curicaca*, or *Mandurria*, and, according to M. d'Azara, is found in couples, in families, and in troops of fifty. It prefers dry to humid grounds, and neither enters into water, nor into inundated places. It lives on earth-worms, grasshoppers, and insects, which it even picks off dead animals. The individuals which inhabit the same canton, assemble together on the driest and loftiest trees, on the borders of woods, from which in the morning they proceed over the adjacent territory. On the trunk of broken trees they place a deep nest, composed of a quantity of small wood. M. d'Azara has seen an individual of this species equally well tamed with the last.

The birds of the genus Curlew were designated by the Greeks under the names *Clorios* and *Noumenios*, and by ancient naturalists as *Numenius*, *Arquata*, *Falcinellus*. Linnæus placed them among the snipes; but more modern naturalists have removed them from that division, under the generic appellation *Numenius*, which signifies of or belonging to the new moon, in consequence of the crescented form of their bill.

In the first edition of the "Règne Animal," M. Cuvier separated *Phœopus* and *Falcinellus* from the true curlews, and formed them into two distinct subgenera. In his new edition he has left *Phœopus* with the curlews, and changed the position of *Falcinellus*, as we shall see hereafter.

The curlews live on the shores of the sea and rivers, in marshes and meadows, and often advance into the inland. They live on worms, insects, snails, and small shell-mollusca; their walk is grave and measured; they do not perch; their flight is sustained, and very elevated; they emigrate in large flocks, but remain isolated during the period of reproduction; they nestle on the sand or in the grass, and the young quit the nest the moment they are born to seek their own food. The females of these birds are distinguished with difficulty from the males. There are but two species in Europe, but a greater number are to be found in Asia, Africa, and the New World.

The *Common Curlew* (*Scol. Arcuata*) is found in the north of Europe, even to Siberia; and in the south, in Italy, and in Greece. It is also met with in Egypt, and in other countries of Africa and Asia. It lives on the sea coast, and on banks of rivers and muddy lakes; in meadows, fields, and sandy places, near the sea or other waters. It stops but little in the fields, which it traverses in flocks. It is also seen in downs and heaths, where it nestles. In France the curlews are numerous in the neighbourhood of the Loire. This bird lays four or five eggs, the ground of which is rather olive, with round spots of a reddish-brown, which form a sort of crown towards the thick end. The flesh of the curlew, though formerly esteemed, is no longer in any great repute, though its scent is of that description that the best dogs will set it for partridge. White curlews are sometimes to be met with; but this is an accidental degeneration, the same as in many other species.

The *Little Curlew* (*Scol. Phæopus*), in the months of April and May, passes regularly in numerous troops along the sea coasts, to proceed northwards. It is very rare in France and Germany, but more common in Holland and this ountry. It is probable, as Lewin says, that many pairs of this bird remain with us, though the species generally nestles in the regions of the Arctic circle and in Asia. Its eggs are the same colour as those of the last, but are smaller. The habits, mode of life, and sojourn of the two species are the same, though they never mix together.

Of the habits of the other curlews, we have nothing to dilate on.

We now come to the Snipes proper, beginning with that well known bird the *Woodcock* (*Scol. Rusticola*).

This species is generally extended throughout all the climates, both hot and cold, in the old continent. It is also found both in North and South America; but it is every where a voyaging bird, though its migrations are not in general from one distant country to another, but from the mountains to the plains, and from the plains to the mountains. In Europe, during summer, it inhabits the Alps, the Pyrenees, and other lofty mountains, from which it descends in the month of October, and spreads through the woods of the lesser hills, and even visits the plains. This passage is advanced or retarded according to the weather and winds which prevail in the commencement of autumn. The east and north-east winds cause the woodcock more speedily to change its domicile, especially when they are accompanied with fogs, for these birds do not fly in the day-time, except when the weather is overcast.

Azuni tells us, that in Sardinia the woodcocks are birds of passage, in the full acceptation of the word; and that a single one is not to be found in summer in the mountains of Genargento, of Limbara, and Villanova, which may be considered

as the Sardinian Alps. They do not appear throughout the isle until the end of October, and at the end of March they are nowhere to be seen. They visit us with the redwings, and are supposed to come from Sweden. They leave us for the most part in the spring, but it is well known that several pairs continue throughout the summer. More than one instance has been known of their breeding here, a thing never known in Scotland.

Buffon says that the woodcocks arrive one by one, or two by two, but never in flocks. This is quite true with regard to their mode of visiting this country. They appear in this manner with us, and usually in the evening in misty weather, and are often so fatigued as to be taken by the hand, or knocked down with sticks. On the continent, however, it would seem that they may sometimes be seen in much greater numbers together. Magné de Marolles says, that he had a woodcock in his hands which was killed in a flight of from fifty to sixty of these birds; and he cites many instances of fowlers, who, in a morning or evening, along a thick hedge, or in a wood of small extent, have killed a dozen woodcocks, and have met, in the commencement of their arrival, on certain days, forty, fifty, and even eighty of them, in a small district, where none were to be seen the following day. Such assemblages cannot in truth be easily explained on the supposition of the woodcocks arriving one by one, or in couples.

On their arrival, these birds alight indifferently in woods, hedges, heaths, coppices, &c. They prefer woods where there is a thick mould and fallen leaves, under which they seek for worms during the day-time. On the approach of night they sally forth to drink, and wash their bills in ponds and fountains. As soon as day begins to appear, they re-enter the woods.

The woodcock walks badly enough, as do all birds with

large wings and short legs. It rises heavily, and makes much noise at the moment it sets out. Its flight, though rapid enough, is in general neither lofty nor long sustained; and it alights with so much promptitude that it seems to fall like a mass to the ground. Soon after, it raises its head, looks round on all sides, and runs away with remarkable swiftness.

The stupidity commonly attributed to the woodcock may possibly be essentially referred to the weakness of its visual organs; with its large and convex eyes, it cannot see well but by twilight. A stronger light is offensive to them; and the movements of the animal, like those of the nocturnal accipitres, must be extremely uncertain at the hours in which it is possible to observe them accurately. We do indeed find that its motions are much more lively at nightfall and at morning dawn than at other times. The instinct which inspires the woodcock to change place after the setting or before the rising of the sun, is so natural and necessary a consequence of its organization, that many individuals confined in apartments have been observed to take a flight every morning and evening, while, during the day or night, they merely jerked about, without ever rising.

Buffon believes that they discern their food by scent rather than sight, and rests this opinion on an observation of Bowles, who examined these birds in an aviary at St. Ildephonse, where they were daily furnished with fresh sods, full of worms. However quickly these worms might endeavour to conceal themselves, the woodcock would bury its bill into the earth as far as the nostrils; and having drawn it out, swallow them in a moment. Much stress, however, cannot be laid on this instance. The bill being inserted only as far as the nostrils, proves nothing but the necessity of preserving respiration; and the bill once fixed in the earth, the position of the nostrils must be a matter of total indifference.

We cannot conclude that, anteriorly to the insertion of the bill, smell had any thing more to do with the precision of the action than sight. The organ of this sense is in general so obtuse among birds, that it is contrary to analogy to suppose the woodcock peculiarly privileged in its enjoyment, more especially as, in consequence of the fleshy substance which terminates its upper mandible, it is already endued with a species of tact calculated to enable it to discover suitable aliment in wet and muddy ground.

About the month of March the woodcocks generally return to their mountains, and are then mated. It is pretended that they never rest at night during their migrations. But how is it possible to ascertain a fact like this? which is moreover inconsistent with the observations we have above stated relative to their quiescence during this period. They usually remain during summer in the most solitary and elevated mountains of Savoy, Switzerland, Jura, the Vosges, &c. Though some remain, as we have before remarked, in England, and also in the most elevated districts of France.

These birds, by nature solitary and wild, are mute, except in the season of love. They then utter different cries, unnecessary to be described to those who have heard them, and useless to those who have not. The males, as usual with birds, dispute violently for the females, and fight so desperately with their bills, that they sometimes fall to the earth exhausted or dead. Their nests are composed of leaves, or dry plants, mingled with little twigs of wood, put together inartificially, and heaped up on the ground against the trunk of some tree, or under a thick root. The eggs are four or five, of an oblong form, reddish grey, marbled with deeper shades, and a little more bulky than those of the common pigeon. They are said to be very good eating. While the female is sitting, the male is almost always close to her, and their bills rest mutually on each other's backs. When the

young are disclosed, they quit the nest, being as yet covered only with a soft down, and they even begin to fly, before they have any other feathers than those of the wings. When they are discovered, they endeavour to escape by half fluttering and half running. The parents have been sometimes seen to take under their throats one of the young, apparently the weakest, and thus carry it off for a considerable distance. The male never quits the female as long as the young have need of their mutual assistance.

The body of the woodcock, at all times very fleshy, becomes very fat towards the end of autumn. It then, and for the most part of winter, is a game in high estimation. These birds grow thin in proportion as the spring advances, and such of them as remain in summer, have the flesh hard and dry.

In woods which are tolerably open and intersected with paths, and along the hedges, the woodcocks shave the ground in a tolerably straight line, and are then easily shot. But in coppices and thick woods, they are obliged to make turns, and then plunge behind the bushes, thus escaping the eye of the fowler. Instead of flying off when they are approached, they remain covered beneath the tufted foliage, and depart, at last, under the very feet of their pursuer. The dogs which bark at the moment when the woodcock springs, are the most useful in this sport; but setters are inconvenient. But the modes of taking these birds are too well known, to render it necessary for us to dwell upon them, nor perhaps is such a subject altogether consistent with the department of natural history.

There are many accidental varieties of the common woodcock; such as the *white* (*Sc. Candida* of Brisson), whose plumage is sometimes entirely white, and sometimes mixed with waves of grey and marrone; the *red*; the *isabella*; the *red-headed*, whose body is white, and the wings and head

red; and the *white-winged*, which, with the exception of the wings, has the rest of the plumage like the common woodcock.

The *Snipes*, though agreeing very much in external resemblance with the woodcocks, differ from them in natural habits. They do not inhabit woods, but remain in the marshy parts of meadows, in the herbage, and amongst the osiers which are on the banks of rivers. They are still more generally spread than the woodcocks, and there are no portions of the globe in which some of them have not been found. They are observed to be incessantly employed in picking the ground, and Aldrovandus has remarked that they have the tongue terminating in a sharp point, proper for piercing the small worms, which, probably, constitute their food; for though nothing is found in their stomachs but liquid, and an earthy sediment, it must be that such soft bodies as worms, &c. dissolve there very quickly, and that the earth which enters along with them, is the only substance unsusceptible of liquefaction.

Autumn is the season for the arrival of the common snipe in most of the southern and western countries of Europe. It then extends through meadows, marshes, bogs, and along the banks of streams and rivers. When it walks, it carries the head erect, without either hopping or fluttering, and gives it an horizontal movement, while the tail moves up and down. When it takes flight, it rises so high as often to be heard after it is lost sight of. Its cry has been sometimes likened to that of the she-goat.

The snipes, for the most part, migrating northwards, in the spring, nestle in Germany, Switzerland, Silesia, &c. Some, however, continue in their more southern stations, making their nest in the month of June, under the root of some alder or willow, in a sheltered place. This nest is composed of dry plants and feathers, and the female lays four or

five oblong eggs, of a whitish tint, spotted with red. If the female be disturbed during incubation, she rises very high, and in a right line, then utters a particular cry, and re-descends with great rapidity. While the female is hatching, the male frequently is observed to hover around her, uttering a kind of hissing noise. The young quit the nest on issuing from the shell, and then appear very ugly and deformed. Until their bill grows firm, the mother continues her care of them, and does not leave them until they can do without her.

The snipe usually grows very fat, both in Europe and North America; but much less so in warm climates. Its flesh, after the early frosts, acquires a fine and delicate flavour. It is cooked, as well as the woodcock, without being drawn, and is in universal estimation as an exquisite game. It is caught in various ways, and is well known to be a difficult shot, when turning and winding in the air; though by no means so when suffered to proceed in a right line, especially as the smallest grain of lead is sufficient to bring it down, and the slightest touch will make it fall.

The *Double Snipe (Scol. Major)* was considered by Buffon as a mere variety of the common, as that naturalist probably took into consideration only its superior size, and the trifling difference of the plumage. It has, however, since his time, been ascertained to be a different species. It differs from the common snipe in its cry, in its flight, which is generally direct, and with few or no circlings, and in its habits, preferring to marshy and muddy grounds, those places where there is but little water, and where it is clear. There is little else worth remarking concerning it.

The *Little Snipe* is not larger than a lark. It is less generally extended than the common species. In France, it remains in the marshes almost during the whole year, where it nestles and lays eggs, like those of the common

snipe. Concealed in reeds and rushes, it remains there so pertinaciously that it is necessary almost to walk upon it to make it rise. Its flight is less rapid and more direct than that of the common snipe. Its fat is equally fine, and its flesh similarly well-flavoured. It is not very common in this country.

There is a number of other species of woodcock and snipe, as may be seen by our table, but there is nothing in their habits to induce us to exceed the limits to which we are necessarily prescribed in this portion of our work.

We must also dismiss, without any supplementary notice to the text, those African and Indian birds, to which MM. Cuvier and Vieillot have given the name RHYNCHÆA, and for the same reason. The figure of the *Cape Snipe*, described at page 371, will illustrate this genus.

The birds of the division LIMOSA, or GODWITS, are to be distinguished from the foregoing. The woodcocks, properly so called, inhabit woods. The snipes live in fresh water marshes; but the limosæ prefer the sea-shore. The passage of the last into the temperate climates of Europe takes place in September, and, for their short stay, they frequent salt marshes, where, like the snipes, &c. they live on small worms, which they draw out of the mud. Those which are sometimes to be met with in inland places, have doubtless been driven there by the wind. Mauduyt, who observed some of them exposed for sale in the Parisian markets, in spring, concluded, and justly, that they make a second passage in spring, and not that they ever nestle on the French coasts. These timid birds, whose sight moreover is weak, remain in the shade during the day-time, and it is only by evening twilight, or early dawn, that they proceed in search of food, for the discrimination of which their bill is particularly fitted. Little stones are sometimes found in their gizzard, but we cannot conclude that these hard substances answer with them, as with the

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J.C. Zeitter. Sculp.

Mus. Gen.l Hardwick.

CAPE SNIPE.

RHYNCHÆA CAPENSIS.

London. Published by Whittaker & Co. Ave Maria Lane Dec.r 1829.

gallinæ, for the trituration of their food, which is too soft to require any thing of the kind, but rather that they have been taken in along with it.

These birds are particularly wild, and fly precipitately from the slightest appearance of danger, uttering a cry which Belon compares to the smothered bleating of a she-goat. At the time of their arrival they are seen in flocks, and often heard, passing very high, in the evening, or by moonlight. But the moment they alight, they are so much fatigued that they resume their flight with much difficulty; at such times, though they run with swiftness they can be easily turned, and sufficient numbers driven together to enable the fowler to kill several of them with a single shot. They remain but a short time at one place, and it is not uncommon to find them no longer in the morning, in those marshes, where, the preceding evening, they had been extremely numerous. Their flesh is excellent eating.

The Limosæ inhabit, by preference, the cold regions of both continents; but in like manner as from Lapland they have extended into the temperate climates of Hudson's Bay, so have they advanced considerably into the other countries of America. Sloane has found some of them in Jamaica; and from certain passages of Hernandez, it would appear, that they have been seen even in New Spain; some individuals have been shot in winter, in this country. Of the species separately, nothing could be added but mere description.

The division CALIDRIS, at the head of which stands our *Sandpiper*, has given rise to multifarious learned disputes among naturalists, which our readers will be thankful to us for omitting here; neither can we instance anything respecting the species of which it is composed, deserving their attention.

The SANDERLINGS are found in Europe, in Asia, in North America, and in New South Wales. They inhabit the sea-

shores, and abound, in spring and autumn, both on the coasts of Holland and of this country. They are only seen accidentally in countries remote from the sea. There is but one species; but as these birds, which undergo two moultings, are most frequently seen in their summer plumage, in which red, or reddish, is the predominant colour, while in winter it is grey, it is not wonderful that naturalists have made a distinct species under the title of *Charadrius Rubidus*.

The Sanderlings traverse in their periodical migrations a large portion of the globe. But they are only seen accidentally along rivers, which leads to the presumption that their aliment consists of small marine worms and insects. They breed in the North.

The Sea Larks (*Alouettes de Mer*), a name exceedingly improper, as tending to the confusion of two genera so widely remote, never quit the edge of waters, and especially prefer the sea-shore, although they occasionally remove to a considerable distance from it, since they are frequently seen around the lakes and along the rivers of the Vosges and the Pyrenees. They are birds of passage, at least in many countries of Europe. They proceed very far to the north; for they are found in Sweden, on the borders of the Caspian Sea, and throughout the whole of Siberia. During winter they are very common both in France and England. The species is named by Latham, *Purre Sandpiper* (*Tringa Cinclus*, L.).

Except during the nestling time, these birds unite in flocks, often so crowded, that a great number of them may be killed by a single shot. Nothing, says Belon, is more wonderful concerning this little bird, than to see five or six hundred dozens of them brought, on a single Saturday, in winter, to the Paris market. They constitute an excellent game, but must be eaten fresh; they are not, however, destitute of that oily taste, which appertains to almost all species of aquatic birds.

The purre sandpipers pursue their prey, which consists principally of marine-worms, along the shore, running and shaking the tail incessantly. They construct no nest, and lay on the sand four or five eggs, very large in proportion to the size of the bird. It is not ascertained whether they have two broods yearly, or not, but their great multiplication renders the affirmative probable.

They are found, as numerous as in Europe, in the Northern and Southern Countries of America. Bartram says, that they pass the entire year in Pennsylvania; and Bosc has seen them arrive from the North, in Carolina, in the winter season. They are also considerably numerous in Louisiana, the Antilles, St. Domingo, Guiana, Brazil, &c. In every place they frequent sandy coasts only. During high tides, these sandpipers collect in such abundance on the strand, and are so crowded together, that more than fifty may be brought down at a single shot.

Modern navigators have met with them on the shores of the Australian islands. They also frequent those of Africa, and are found at the Cape; so that it would appear that there is no part of the world where these birds do not exist.

Cocorli is merely a designation given by M. Temminck to the *Cape Curlew* of Latham (*Numenius Africanus*), of which no further notice need be added here.

The division FALCINELLUS, in like manner, comprehends but one species (*Scol. Pygmæa*), and is merely distinguished by a bill a little more arched than the foregoing.

As to the MACHETES of the text, including the species *Tringa Pugnax* only, the birds which constitute it are remarkable for nothing but the desperate combats which take place between the males, for the possession of the females. It is the *Ruff Sandpiper* of Latham, and is very singular in its appearance.

The subdivisions EURINORHYCHUS, containing the *Dwarf*

Spoonbill of Latham, and PHALAROPUS (*Tringa Lobata*), present nothing worthy of notice. The same may be said of STREPSILAS.

Under the division TOTANUS of the text, are comprehended many species, formerly disseminated through the genera *Scolopax* and *Tringa* of Linnæus. They have received in French the denomination of *Chevaliers*, because, according to Belon, their body, mounted on such long legs, appears as if on horseback. These birds, many of which enter into the water up to the knees, but without swimming, live on the sea-shore, on the banks of lakes and ponds, and in low and humid meadows, where they subsist on small worms, and, in default of them, on terrestrial insects, flies, &c.; but rarely on the spawn of fish. They construct their nest on the ground, in the grass, &c., and the young ones soon quit it. During the season of reproduction, they are found in pairs; but most generally form, in Autumn, small flocks, which migrate, and do not separate until Spring. Though subject to a double moulting, their winter does not differ from their summer plumage, except in the distribution of spots and stripes, and the males are of the same size as the females. Their flesh is usually tender and well-tasted.

What we have now said generally as to habits, is applicable to all the species. Passing over LOBIPES as affording nothing worthy of notice here, we proceed to HIMANTOPUS.

The bird which serves as the type of this subdivision, was named *Himantopus* by Pliny, which signifies cord-like formed feet, on account of the weakness of its legs, and by M. de Lacépède *Macrotarsus*, on account of their exceeding length; in the systems of Linnæus and Latham it is a plover, and we have figured the European species under the name of the long-legged plover. If the privation of thumb did not exclude it from the family of totanus, this bird would seem more nearly related to that family, in the length of legs and the form and tenuity of bill, than to the plovers. It would be the same with the

THE LONG LEGGED PLOVER.

London. Publish'd. by G & W. B. Whittaker Feb.y 1824.

succeeding genus, the *Avosets*, were not the feet palmated almost entirely.

Buffon, considering the apparent disproportion of the limbs of this bird, which so ill support its little body, placed at such a distance from the resting point; and the shortness of its toes, so ill-calculated to afford a resting place; could see in the himantopus only a relic of the first productions, in which nature roughly sketched out the plan of animal conformation. But Mauduyt, with much propriety, does not approve of this method of reasoning, concerning the works of creation, and thinks it more suitable to the dignity of the Supreme Being to conclude that he saw, thought, and executed every thing, in one and the same instant, without making those experiments, which would lower him to our standard. We may, however, remark, that the conjecture of Buffon is of the nature of those to be found in Pliny, who calls the *convolvulus*, "Naturæ rudimentum lilia facere condiscentis." Furthermore, we may say, without any derogation from the divine dignity, that Mauduyt's notion of the instantaneous production of all things, is partially inconsistent with the lights which subsequent discoveries have thrown on science.

To others, indeed, what Buffon thought monstrous, appeared one of the admirable works of nature. According to M. Descourtilz, the conformation of the *Himantopus* or *Long-legged Plover*, is a proof that this all-providing mother, even in the minutest details of her labours, has modified the framework of animated beings, according to the nature of their daily wants. Had this bird, says he, been destined to seek its subsistence on a dry and arid soil, then indeed its proportions would have been defective. But it usually frequents the shores of the sea, and inundated lands. There the length of its legs and neck allows it to enter, and plunge its bill into the water to draw out the worms and insects, or larvæ, which

exist on the surface of the muddy bottom. Thus, then, the apparent disproportion of its limbs is a proof that the motive power of the universe embraces all the relations of organized beings.

Many authors have asserted, after Pliny, that these birds devour the flies which hover around them; but it is extremely doubtful that birds so ill established on tottering legs, could well devote themselves to an exercise of this kind, which, moreover, could not take place in all seasons. It would seem more natural to suppose, that certain motions of their head, which perhaps have given rise to this opinion, were merely intended to facilitate the introduction of small worms into the gullet.

Authors are but little agreed respecting the habits of these birds. Some say that, to preserve their equilibrium, they are obliged to keep their bodies half bent; while others, among whom is M. d'Azara, tell us, that they walk with a proud air, and with long strides. If this last assertion be not very probable, it would appear that there can be no very great uncertainty with regard to the rapidity of their flight, for which their feet, stretched back, serve as a helm, and supply the deficiency of length in the tail. According to M. d'Azara, their cry, which may be expressed by the syllable *gaa*, is rarely heard. M. Descourtilz, on the contrary, who also disagrees as to the sound, maintains that their cry is very troublesome, and incessantly repeated by the bird, whose character is very unquiet. These birds are monogamous, and moult, according to M. Temminck, but once a year, in the autumn. The eggs are five or six, according to many writers. M. Descourtilz says, that they are but two or four, which in size and colour resemble those of the red partridge; and he adds, that those eggs, negligently deposited on some little hillock, are covered, like those of the flamingo, by the bird in a standing

posture. The young quit the nest soon after their birth, to seek their food alone.

Though the himantopus is rather rare, it is yet found in various parts of the world. Marsigli has seen some of these birds on the Danube, and Sibbald in Scotland. They are sometimes to be found on the coasts of England and France. They are more common in the neighbourhood of the Tanais and the Caspian Sea. This bird also inhabits Barbary, and is a bird of passage in Egypt. It is known in China and India, under the name of *Craboli*. Some authors pretend that there are three species in America, namely,—that of Mexico, which Fernandez has described under the name of Comaltecatl; another in Guiana, and one in Paraguay. But these rather appear to be varieties, referable to age, to sex, or climate, than distinct species.

The AVOSETS, which, with the exception of the membranes with which their feet are furnished, seem, by their general form and organization, to belong rather to the grallæ than the palmipedes, exhibit many traits of resemblance with the flamingos. They are, however, distinguished from all other birds by the strong curvature of the bill upwards. This curvature, indeed, exists to a certain extent in one species of Limosa, and the bill of the Jabiru, much stronger, has also the point higher than the base. But in neither is it nearly so remarkable as in the avoset. This construction, supposed to be so little favourable to the prehension of aliment, has given rise to doubts respecting the manner in which this instrument was employed by the animal, and respecting the substances from which it derived its food. As the avoset is very wild, there was no opportunity of observing it very closely, and dissection, though, after all, but a vague criterion, as the aliments were found in the stomach in a half digested state, afforded the only means of throwing light on this subject. But the matter, fat and glutinous

to the touch, the debris of insects, the small white and crystalline stones, and the slimy sediment which the viscera usually contained, led to the presumption that the nutriment of these birds consisted in fish-spawn, in small worms, and aquatic insects, with which they sometimes swallowed small stones or mud. This conjecture becomes extremely probable on a consideration of the habits of the bird. Its bill, whose form appears so singular, has, in fact, some advantages for searching in the sand, where its extremity, almost membranous, causes a perception in the animal of the qualities of the matter which it touches, and enables it to seize the small animals, which it recognizes by their softness. The horizontal flatness of the mandibles, advantageous for side movements, would prove an obstacle in this case, if the bird should raise up, perpendicularly, the broad surface of the bill covered with sand; but this action is performed with facility by means of its sharp edge, and the bird always draws out its bill on the right or left, without being obliged to change place. Its progress, in fact, may be traced on the sand by the series of semicircles which it leaves after it. As the bottom, which it is continually sounding, has but little tenacity, its bill, whose consistence may be compared to that of the beak of the whale, is more fit for its intention than if it were osseous. Flexibility and suppleness are usefully substituted for strength, which in this case is less necessary, as the avoset can run upon a soft and slimy bottom, covered by five or six inches of water, by means of its long legs. Nature, who would appear on a superficial view to have treated this bird so ill, has again supplied it with another means of facilitating its search for subsistence over a larger space, by supplying it with webbed feet, by the aid of which it can swim when it traverses deeper places, or seize the spawn as it floats along the surface of the water. If the bill of the avoset is useless for defence, the same is the case with many other birds that have this organ more naturally

THE PARRA JACANA.

Published by Whittaker & Co. Ave Maria Lane. Jan.y 1830.

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AMERICAN AVOSET.

RECURVIROSTRA AMERICANA.

London. Published by Whittaker & C.° Ave Maria Lane. Oct.r 1829.

proportioned, and are also destitute of the means of quick escape afforded to the one in question. The avoset, in this respect, possesses a fineness of perception far superior to what is remarked in most other birds. It is not only approached with extreme difficulty, but it knows well how to avoid all the snares which may be laid for it; and, finding an assured subsistence in the places which it habitually frequents, its lot is by no means one deserving of pity.

The avosets of Europe and America constantly prefer cold and temperate climate to hot countries, and the shores of the sea to the mouths of streams and rivers. Their migrations are determined by the want or abundance of food; but though naturally voyaging birds, they remain in some places all the year round, as for instance in the neighbourhood of Feversham, in this country.

We now come to the family of MACRODACTYLUS, beginning with the JACANAS.

These birds are inhabitants of the marshes of warm climates. They walk with great facility over the large aquatic plants, by means of their long toes. Their flight is straight and horizontal. They are noisy and quarrelsome, never concealing themselves, and walking more in the day time than in the morning and evening. They enter the water as far as the knee, but do not swim. Their food consists in aquatic insects. They are found in Asia, Africa, and the different countries of America, situated under the tropics. They are monogamous, and make a nest on the ground in the grass, in which they deposit from four to five eggs. The young follow the parents immediately after their birth.

Lefebvre des Haies, who studied the manners of the common species *(Parra Jacana)*, at St. Domingo, furnished Buffon with details on the subject, from which it appears, that these birds go in couples, and when by any chance they are separated, they recal each other with a peculiar cry. Their

nature is so wild that the hunters cannot approach them but by covering themselves with leaves, or gliding along behind the bushes and reeds. It is during and after the rainy season that they are chiefly to be seen in the lagoons and marshes, and on the borders of stagnant waters. Their flight, though by no means lofty, is rapid; and on setting forth, they utter a sharp cry, which may be heard at a great distance. According to the same observer, it would seem that there is no foreign enemy against which the jacana exercises its array. Their warlike disposition is evinced among themselves, and they dispute for food, space, and, above all, for the possession of the females.

The KAMICHI (PALAMEDEA), *Horned Screamer*, Lath. is a large bird, hitherto seen only under the torrid zone of the New Continent, and constitutes a very distinct and easily to be recognized genus. The species, which is rare, inhabits the inundated lands of South America. It does not enter the great woods, perching only momentarily on dead branches. It sends forth shrill and piercing cries, which may be heard at a considerable distance, whence its English name. Bajon tells us, that its aliment consists only in aquatic plants and seeds, though others, before him, have averred that it also fed on reptiles. It never attacks other birds, and the only use it makes of its arms is, when the males dispute for the possession of the females. Once paired, however, the two sexes quit each other no more; and when one dies, the other soon pines away with grief.

The screamers construct their nests in the form of an oven, at the foot of a tree, according to Pison; but Bajon tells us that they make it in bushes, at some distance from the ground, and often in reeds. The female, in general, lays but two eggs, of the size of those of a goose, and there is but one brood, in the month of January or February, except when the eggs are destroyed by any accident, and then a second takes place in

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Lath. America

FAITHFUL JACANA.

PARRA CHAVARIA. Lin.

London. Published by G.B. Whittaker, Oct. 1828.

April or May. As soon as the young are in a state to fly, they follow the mother, who gradually accustoms them to seek subsistence alone, after which they quit her. The flesh of the young, though black, is good eating; but that of the old is hard, and less agreeable to the taste.

The CHAIA of Paraguay, which now forms a distinct genus, is the bird of which the opposite is a figure, under the name of the *Faithful Jacana (Parra Chavaria)*. It has many relations, both with the jacanas and the genus just noticed.

These birds are found near Carthagena, and on the two sides of the river Plata, in places where the water is low, and especially in marshes. They do not seek, like the herons, fish and frogs, but their aliment seems rather to consist in aquatic plants. On the ground their walk is grave; they keep the body in a horizontal position, the legs apart, and the head and neck in a vertical line. When they rise into the air they make, like the vultures, long circuits, until they are lost sight of. They also perch on the summits of the largest trees. M. d'Azara was not enabled to ascertain exactly the places in which they build their nests, some informing him that it was on bushes surrounded with water, others, that it was in reeds and rushes. It would appear that the brood, which takes place in August, consists but of two young ones, which, while they are yet covered with simple down, commence to follow the mother.

Though the arms of the chaia, its ornaments, the volume of its body, and its sonorous voice, all give it the appearance of a warrior bird, its character is rather mild; but it will not permit the approach of birds of rapine, and is particularly at war with the urubu vulture. Accordingly, the inhabitants of the countries in which it is found rear it up in their poultry-yards, where it becomes the protector of the fowl, feeds along with them, follows them into the fields, and brings

them home at the close of night. It is from this circumstance that Latham has named it the *Faithful* Jacana.

Megapodius is a new genus, recently discovered. M. M. Gaimard and Quoy, attendant naturalists on the expedition round the world by Captain Freycinet, in the month of December, 1818, found in the Papuan islands a bird which in their opinion presented many relations with *Menura*, and which also seemed to constitute a passage between the gallinæ and the grallæ. Our author, however, at first, and likewise M. Temminck, rather referred it to the former of those orders; and the latter considered it as the representative of the tinamous in the hot regions of the old world. Our author, however, in his last edition, has transferred it to the grallæ. The name megapodius has been given to the genus in consequence of the size of the feet.

The *Megapodius Freycinet* is very common in the island of Guébé, where it appears to live in a state of semi-domestication. The humid woods are its habitual dwelling. Its walk is slow; and the feet being thrown backward, the body is continually projected forward, which gives a vaulted or arched appearance to the figure of the bird. It nearly shaves the ground in its flight, which is but of short duration. Its cry is a sort of clucking. The eggs, of a pale brick colour, or that of coffee with milk, are oblong, and disproportionately bulky compared with the size of the animal. An individual of this species lived for several days on board of the corvette Uranie. There are some other species, concerning the habits of which we find no details worth adding to the above. One of these we have figured under the name of *M. Reinwardtii.* It is the *M. à pieds rouges* of Tem., and is described at page 401.

The name of Rail (*Rale*, *Rallus*) appears to be attributable, according to Buffon, to the disagreeable cry uttered by the land rail, which resembles a rattling in the throat

C. Hamilton Smith. Esq.
Mus. Paris.

THE MEGAPODIUS OF REINWARDT.

M. REINWARDTII.

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(*Fr. Râlement*). We may remark, in general, that these birds, which remain during the day concealed in the grass, seek their food morning and evening in the reeds and plants of marshes and meadows. They fly very far, and walk with great agility. They never join in families or flocks. They raise their neck like hens when they are disturbed, and the young quit the nest immediately after birth, and seize of their own accord the food which is indicated to them by the mother. To the *Land-rail* or *Corncrake*, these remarks are not perhaps applicable in all respects.

The *Water-rail* (*Rallus Aquaticus*) runs along stagnant waters as fast as the corn-crake does over the fields. Sometimes, instead of traversing the water by swimming, it sustains itself on the broad leaves of aquatic plants. Its food consists in insects, snails, and shrimps. It makes its nest in the midst of plants, by the side of ponds and streams, and the female lays from six to ten yellowish eggs, marked with spots of reddish-brown. The flesh of this bird has a marshy taste, but is, notwithstanding, in some estimation. The Philippine Rail is described at page 403.

Among the species which form the genus CREX of Bechstein, is

The *Land-rail*, or *Corn-crake*, which is in the genus *Gallinule* of Latham. In the more southern countries this is a bird of passage. It arrives among us and in France about April or May, and disappears in the commencement of October. By its short and sharp cry, *crïk*, *crïk*, we recognize its return. On approaching the quarter whence this cry proceeds, the sound is not discontinued, but heard a little farther on, which is occasioned by the bird, which can fly away but with difficulty, running with extreme swiftness through the tufted grass. In consequence of the coincidence between the return and departure of the quails and this bird, the latter has been sometimes deemed the conductor of the

former. These birds are insectivorous when young, but the adult add grains, &c. of various kinds to this aliment.

The Banded Crake, the White-chinned Gallinule, and the White-spotted Crake, heretofore unfigured species, are described at pages 409 and 410 of this volume.

On the birds of the genus Fulica, we may generally remark that, though unprovided with palmate feet, they swim and dive with great facility.

Its first subdivision, the Water Hens (Gallinulæ), though often on the dry land, yet seem to claim fresh waters as their true domain. They generally live on those which are stagnant. They are usually seen singly, or in couples. They do not often swim except to pass from one bank to another in search of small fish, aquatic insects, plants, &c. They are fond of the place in which they were born, and always revisit it. The day they pass concealed in the reeds and rushes, and only trust themselves on the surface of the waters in the evening, or at night. Their flight is neither elevated, sustained, nor rapid. They place their nest on the edge of the bank, composed of dry rushes rudely heaped together. The young ones can run as soon as they are excluded from the egg, and follow the mother but for a few days. They are natives of both continents.

On the other two subdivisions of Fulica, the SULTANAS and FULICA proper, or the coots, there is nothing to be added, except that the former, though aquatic birds, show a fondness for the productions of the dry land. The opposite is a figure of the *Purple Gallinule* (*Fulica Porphyrio*), the description of which will be found at page 412 of the text. The figure of the Thick-billed Coot is from apparently a new species, which was brought from South America by our friend, the Rev. Mr. Hennah. The bill, remarkably high, and the frontal plate are yellowish, mixed with black; the head, neck, breast, and fore-part of the belly, are ash, deepest on the breast; the mantle and quills are deep brown; the wing-

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PHILIPPINE RAIL.

RALLUS PHILIPPENSIS.

Mus. Genl Hardwick.

London. Published. by Whittaker & Cº Ave Maria Lane. Aug. 1829

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Mus. Brit.

WHITE SPOTTED RAIL.

CREX PULCHRA.

Published by Whittaker & C.ᵒ Ave Maria Lane, Jan.ʸ 1830.

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BANDED CRAKE.

CREX LATERALIS, Lich.

London, Published by G.B. Whittaker, Nov. 1.1827.

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PURPLE GALLINULE OR SULTANA.

F. PORPHYRIO. Lin.

Published by Whittaker & C.o Ave Maria Lane. Jan.y 1830.

ASIATIC

Mus. Brit.

WHITE CHINNED GALLINULE.

G. GULARIS.

Published by Whittaker & C.° Ave Maria Lane Jan.y 1830.

C. M. Cassis del. Griffiths sc.

ex. M.T. Henn's Collection.

THICK BILLED COOT.

FULICA CRASSIROSTRIS.

London, Published by G.B. Whittaker, May, 1828.

CREAM-COLOURED PRATINCOLE.

LACTED GLAREOLA. Tem. Var.

Mus. Gen.l Hardwick.

London. Published by Whittaker & Co.s Ave Maria Lane. Aug.t 1829.

coverts and the irides, bright-brown; the flanks and vents are spotted with white, on a yellowish ground.

The birds of the division VAGINALIS belong to New Zealand; they unite in flocks on the shore, and live on shell-mollusca and dead fish.

The PRATINCOLES are found in all the northern parts of the ancient world. They are only birds of passage in some provinces of Germany, in France, in Switzerland, and in Italy; they fly in flocks, and are clamorous near the edge of waters; they live on worms and aquatic insects; little is known concerning their reproduction. These remarks apply to the common species; of the habits of the rest, little or nothing is known. The Cream-coloured Pratincole may be an inedited species, or a variety of the L. Glareola of Tem., described at page 418, distinguished by the spots on the neck.

The last genus of the grallæ is the FLAMINGO. The Greeks called this bird *Phœnicopterus*, which means wings of flame, an epithet especially suitable to individuals of two years old, whose wings alone are of a fine carnation, while the neck and body are still invested with white plumes.

The characters are so fully given in the text, that it would be needless to insist upon them further. The following general observations must be considered as drawn chiefly from an examination of the common species, the phœnicopterus of the ancients.

The flamingo appears extended over the entire globe, from below forty to forty-six degrees of latitude. This bird, which never visits the regions of the north, is migratory in the warm and temperate climates of both continents. It is merely a bird of passage on the southern coasts of Europe, and only to be met accidentally on the rivers in the interior. These flamingos live on shell-mollusca, on the spawn of fish, and on insects. Always in flocks, they form in file for the

purpose of fishing, and even preserve this figure when they repose upon the strand. They are accustomed to establish sentinels for the common safety; and, whether they repose or fish, one of them always stands as a videt, with his head erect. If any thing alarms him, he sends forth a cry like the sound of a trumpet. The flock immediately sets off, and observes in its flight a similar order to that of the cranes. Some travellers, however, assert that the flamingos are so stupified by a surprise, that they leave the hunter an opportunity of laying them all prostrate.

These birds, in general, nestle on inundated coasts and low islands. Their mode of sitting is described in the text. The eggs are white, about the size of those of a goose, but more elongated. The young cannot fly until they are covered with all their feathers, but run with facility a few days after their birth.

The ancients held the flesh of the flamingo in high estimation, and the tongue was especially regarded as an exquisite morsel; but such of the moderns as have tasted it, declare it to be oily, and of an unpleasant marshy flavour.

Attempts have been made to domesticate the flamingo, but in our climates it languishes and soon dies. Peiresc, who had one in his possession, remarked that it steeped in water the bread which was presented to it; that it ate more frequently during night than day; and that, very sensible to the cold, it would approach the fire so nearly as to burn its feet. When it slept, it drew one leg under the belly; and when deprived of the use of one limb, it walked with the other, and used its bill like a crutch.

The down of the flamingo is apportioned to the same uses as that of the swan. The Indians make bonnets, &c. of the feathers. The Sardinians fabricate a flute with the bone of the leg, the tone of which is said to be very fine.

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FLAMINGO. *Young.*

PHŒNICOPTERUS RUBER. ju.

London. Published by Whittaker & Co. Ave Maria Lane. Octr. 1829.

THE SIXTH ORDER OF BIRDS, PALMIPEDES.

The birds of this order are characterized by their feet and legs, formed for swimming; that is to say, placed far back on the body, with short and compressed tarsi, and webs between the toes. A close, shining plumage, moistened by an oily secretion, and furnished near the skin with a thick down, protects them from the water, on the surface of which they live. They are also the only birds in which the neck is longer, and sometimes considerably so than the legs, because while swimming on the surface they have frequent occasion to seek their food below it. Their sternum is very long, well protecting the greater part of the viscera, and having on each side merely a notch or an oval concavity, covered with membranes. They have in general a muscular gizzard, the cœca long, and the lower larynx simple; but in one family, it is swollen into cartilaginous capsules.

This order is conveniently enough divided into four families.

We shall begin it with that of

The Divers, Brachypteræ.

A part of which have some external relation to the water hens. The legs, situated more posteriorly than in any other bird, cause their walking to be painful, and oblige them while on shore to preserve a vertical position; and, moreover, as the greater part of them are bad flyers, and as many of them cannot even fly at all, on account of the excessive shortness of their wings, they may be considered as almost exclusively confined to the surface of the water; their plumage is therefore closer, and often presents a smooth surface with a silvery brightness. They swim under water with the help of their wings, almost in the manner of fins; their gizzard is tolerably muscular, and the cœcum moderate; they have a peculiar muscle on each side the lower larynx.

Among these birds the genus of

Colymbus,* L.

Has for its own peculiar character a smooth, straight, compressed, and pointed bill, with linear nostrils. The differences however in their feet have caused them to be subdivided.

* The Greek name of these birds.

The GREBES, Briss. PODICEPS, Lath. COLYMBUS, Briss. and Iliger.

Have, instead of true webs, the toes enlarged, as in the coots, and the anterior united only at their base by membranes. The claw of the middle toe is flat, the tarsi strongly compressed. The semi-metallic shining of their plumage, has caused it to be frequently used by furriers. Their tibia, as well as that of the following subgenus, is elongated towards the top into a point which affords a more extensive insertion for the extensor muscle of the leg.

These birds live on lakes and ponds, and build in the rushes. It appears that, in certain circumstances, they carry their young under the wings. Their appearance and plumage change so much with age, that naturalists have over multiplied the species of them. M. Meyer reduces those of Europe to four.

The *Crested Grebe. Col. Cristatus*, Gm. Enl. 400 and 944. Frisch. 183. Naum. 69, f. 106. *Col. Urinator*, Gm. Enl. 941. Edw. 36 ?, f. 2.

As big as a duck; brown-black above, silvery-white underneath, with a white band on the wing; with age it has a double black crest, and the adult have moreover a large collar, red, bordered with black, at the top of the neck.

The *Horned Grebe*. *Col. Cornutus*, Enl. 404, 2. *Col. Obscurus*, Enl. 942. *Col. Caspicus*, Gm. Vieill. Gal. 281, Edw. 145.

Like the last in form, but the collar of the adult is black; the crest, with the fore part of the neck, are red. Its size is, moreover, much less.

C. Obscurus, and *C. Caspicus* is the young; and, according to M. Temminck, *C. Nigricans* Scop., and *C. Auritus*, B. Lath., are varieties. *P. Arcticus*, Boisc. 1823, appears to be a variety.

Red-necked Grebe, Lath. *Col. Subcristatus*, and when young, *Parotis* and *Rubricollis*, Enl. 931, Lath. Sup. I. 118, Naum. 70, f. 107,

Has also the fore part of the neck red, but the crests of the adults are small and black, and the collar is very short and grey. Its size is intermediate between the above two.

When young, according to Temminck, *C. Parotis*, Sparrm. Mus. Charl. t. 9, and *C. Vulgaris*, Scopoli.

Col. Minor, Gm. Enl. 905.

As big as a quail; has neither crest nor collar. Its plumage is brown, with more or less red except at the breast and belly, where it is silvery-grey. The young have the throat white.

Pl. Enl. 904. *Adult Colymbus Hebridus*, Gmel. Penn. Br. Zool. t. 79, n. 227, found in Europe, North

Asia, and North America. Also, *Colymbus Pyrenaicus*, La Perouse.

Pied-bill Grebe. Pod. Carolinensis, Lath. Catesb. I. 91, Enl. 943.

Neck and back, dusky; beneath, white; chin and throat, black; cheeks and neck in front, pale-brown; bill of male with a black bar.

The *Colymbus Podiceps*, Lin.; when young, *P. Ludovicianus*, Lath., Pl. Enl. 943. See Spix. t. 100. *Macao à Bec crochu*, Azara, n. 444.

Double-horned Grebe, Colymbus Bicornis, Licht., *Macao Cornu*, Azara, n. 443.

Bill, elongate, slender, ascending; occipital crest, steel-black, and parted; throat, silvery-black before, chestnut, behind, black; belly, white. Length, twenty-three inches. Brazils.

Philippine Little Grebe. Podiceps Minor, B. Lath. *Pod. Philippensis*, Tem. Pl. Enl. t. 945.

Purplish-brown above; cheeks and sides of neck, rufous; beneath, white. Philippine Islands.

Hoary Grebe. Podiceps Poliocephalus, Jardin, Orn. Illust. t. 13.

Above, brown; feathers of the head and cheeks, long, white tipt; beneath, silvery-white. New Holland. Length, eleven inches.

Eared Grebe, Lath. *Colymbus Auritus*, Lath. Edw. t. 96, f. 2, Naum. Voy. t. 70, f. 10 ♂, Pen. Br. Zool. t. 79, n. 226.

Head, neck, and body, black; orange tuft on each side of head; beneath, silvery. Europe.

White-winged Grebe. Col. Dominicus, Lin. Brisson, VI. t. 5, f. 2, Spix. Braz. t. 101, Brazils. *Petit Macao*, Azara, n. 445.

Head and upper part of body, chocolate; beneath, lighter; quills, white; tips, dusky. West Indies.

Cayenne Grebe, Lath. *Col. Cayanus*, Gmel., from Pl. Enl. t. 400, f. 1.

Head and body above, dusky-brown; breast and belly, white; vent, brown. Cayenne.

Black-naped Grebe. Podiceps Occipitalis. Lesson, Voy. Coq. t. 45. Pernetty, Voy. t. 11.

Bill, black; feet, greenish; forehead, neck, back, and rump, ashy-grey; nape, black; body, before, silky-white. Falkland Islands.

Also have been named *Pod. Kalipareus*, Less. and Garn. Voy. de la Coq. Zool. N°. 45, and *Pod. Rollandi*, Quoy and Gaim. Voy. du Freycin. Zool. pl. 31.

Chili Grebe. Podiceps Chilensis. Garnot. Bay of Conception, Chili. *American Grebe. Podiceps Americánus*, Garnot. Brazils, and Bay of Conception, Chili. The *Black-breasted Grebe. C. Thomensis*, Gmel. are doubtful species.

The COOT-GREBES. HELIORNIS. Bonaterre, PODOA, Ilig.

Have the feet lobated like the coots and grebes;

but their tail is more developed than in either of these, and their claws are sharper.

American Finfoot, Lath. H. *Plotus Surinamensis*, Gm. Enl. 893.

Above, brown; beneath, white; crown, and back of neck, black; throat, and orbital-band, white; sides of neck, black, and white lined. Surinam, Brown, Illust. t. 39. Length, thirteen inches. *Macao à Doigtier.* Azara, n. 446.

African Finfoot, Lath. H. t. 164. *Heliornis Senegalensis*, Vieill. Gal. 280.

Above, brown; beneath, white; sides of the neck, and back, black spotted; tail, rigid, slender. Senegal.

THE DIVERS, properly so called. MERGUS,* Briss. COLYMBUS, Lath. EUDYTES,* Iliger.

Have, with all the forms of the grebes, the feet of common palmipeds; that is to say, their anterior toes are united to the end by membranes, and are terminated by pointed claws. They are birds of the north, which rarely build in France, but arrive there in winter. They are, however, sometimes seen on the coast.

* *Mergus*, Diver, the Latin name of a sea bird, not easily to be determined. Linnæus, after Gesner, has applied it to the Merganser. *Eudytes* has the same meaning in Greek.

Northern Diver, Lath. *Col. Glacialis*, L. Enl. 952. *Col. Immer*, Gm. Wilson, Am. ix. 74, 8. Naum. 66, f. 103.

Of which the adult, two feet and a half long, has the head and neck black, changing into green, with a whitish collar; the back is brownish black, dotted with whitish, and beneath is white. The lower mandible slightly bent toward the upper, has a ridge underneath. The young, *Col. Immer*, Gm. Briss. iv. x. 1, which comes more frequently to our fresh waters, varies by more or less black on the neck, and grey or brown on the back, which, with their smallness, has caused the species to be multiplied.

The *C. Immer*, Gmel. The *Imber Diver*, Lath. Penn. Br. Zool. t. 84.

From these are to be distinguished,

Black-throated Diver, Edw. *Col. Arcticus*. L. Edw. 146. Naum. Sup. 30, f. 60, and the young Enl. 914.

Which is a little less, and has the upper part of the neck ash, and the lower mandible straight, and without a furrow. The young are very like the last species.

The *Lesser Imber*, Bewick; and *Newcastle Diver*, Lath. Hist.

Red-throated Diver, Lath. *Col. Septentrionalis*, Enl. 308. Edw. 97. Naum. 67, f. 94. Vieill. Gal. 282, and *Col. Stellatus*, Gm. Buff. viij. 21. Enl. 992. Naum. Sup. 31, f. 62.

The adult male is brown above, white underneath, the face, and sides of the neck, ash; the fore part of neck, red. The female and the young are brown, dotted with white, above, and entirely white beneath. The *Striped Diver*, *C. Striatus*, Gm. appears to be only a variety of the young.

The GUILLEMOTS. URIA.* Briss. and Il.

Have, with the general form of bill of the preceding, feathers, even to the nostrils, and an emargination at the point, which is slightly arched. But their principal distinction is the want of a thumb. Their wings, still shorter than those of the divers, scarcely enable them to flutter. They live on fish and crabs, dwell in the ledges of rocks, and build there.

Foolish Guillemot. *Colymbus Troile*, L. Enl. 903. Brit. Zool. pl. 2. Edw. 359, 1. Frisch. 185.

Is the size of a duck; the head and neck are brown; the back and quills, blackish; the belly white, with a white line on the wing, formed by the end of the secondary quills. They inhabit the highest northern

* The Greek or rather Latin name of an aquatic bird, which appears to have been a diver or a grebe.

latitudes; build, nevertheless, in the rocky coast of England, and Scotland, and visit France in the depth of winter. The *U. Lomvia*, Brunnich. Choris, Voy. t. 20.

Col. Grylle, L. Vieill. Gal. 294.
Choris, Voy. Round the World, pl. 22.

Smaller than the last; black, with the top of the wings white. It is sometimes marbled with white all over, and is then *C. Marmoratus*, Frisch. Sup. B. pl. 185. Edw. 50. Pennant Arc. Zool. II. 22. Some even are seen altogether white. *C. Lacteolus*, Pal.

The *Grylle Scapularis*, Leach; and *U. Scapularis*, Steph. The young is *U. Balthica*, and *U. Grylloides*, Brunnich. The *White Guillemot*, Lath. Chloris, Voy. t. 22.

Brunnich's Guillemot. Uria Brunnichii, Sabine.
Choris, Voy. Round the World, pl. 21.

Head, black; neck, above, back and wings, sooty-brown; secondaries, tipt with white; beneath, white; from eye to hind head, the feathers divided. Davis's Straits.

The *U. Troile*, Brunnich. The *U. Francesii*, Leach.
Shaw, Zool. xii. t. 62, f. 2.

White-lined Guillemot. Uria Lachrymans, Lapil.
Ibid. 23.

Marbled Guillemot, Penn. *U. Marmorata*, Lath. Syn. t. 96. North America.

Dusky; all the under parts lunated or marbled with white markings; coverts, white tipt. Arctic Circle.

Mandt's Guillemot. Uria Mandtii, Licht.

Very like *U. Grylle*, but secondaries much larger, and white tipt; bill, more slender; tail, tarsus, and toes, larger. Length, twelve and a-half inches. Spitzbergen, Dr. Mandt.

We may, moreover, separate from the Guillemots,

The CEPHUS,* *vulgarly called Greenland Divers*,

Whose bill is shorter, the back more arched, and without a slope. The symphysis of their lower mandible is extremely short. Their wings, moreover, are stronger, and the membranes of their feet, emarginated.

Little Grebe, Col. Minor, Gm. Enl. 917. *Mergulus Alle*, Vieill. Gal. 295. Br. Zool. pl. h. 4, f. 1. Edw. 91. Naum. 1st Ed. 65, f. 102.

Is the best known of the species; of the size of a large pigeon; is black above, and white underneath, with a white stripe on the wing, like the guillemot. Its bill is black, and the feet red. It inhabits the

* Cephus is the name of a sea bird often mentioned by the Greeks, and which appears to have been some species of petrel or gull. It has been applied by Mœring, and afterwards by Pallas, to the Divers and Guillemots. M. Vieillot has changed it into *Mergulus*. Gal. 295.

entire coasts of the north, and builds underground. We see it also sometimes in winter.

The genus

PENGUINS, ALCA, Lin.

Is known by its very compressed bill, elevated vertically, sharp-edged above, generally furrowed crosswise, and by its feet altogether palmated, and without a thumb, like those of the guillemot. All these birds inhabit the North Sea.

They may be subdivided into two sub-genera,

FRATERCULA, Briss. MORMON, Il.

Whose bill, shorter than the head, is more elevated at its base than it is long, which gives it a very extraordinary appearance; a folded skin generally ornaments the base of it. Their nostrils, placed near the edge, are mere narrow clefts. Their small wings can just sustain them for an instant. They live on the sea, like the guillemots, and build on the rocks.

Puffin, Lath. *Alca Arctica*, L.; and *A. Labradoria*, Gm. *Mormon Fratércula*, Tem. Enl. 275. Brit. Zool. pl. H. Edw. 358. 1. Frisch. 192. Naum. 65. f. 101.

Of the size of a pigeon; has the thighs and upper part of the body black; and underneath, white. It builds occasionally on the rough coasts of England,

and sometimes abounds on the French coast in winter.

Tufted Auk. Lath. Syn. v. t. 95. f. 1. head. *A. Cirrhata.* Pal. Spic. v. pl. 1. Vieill. Gal. 299.

Beak compressed, with three grooves; eyebrows, white; behind, with yellow elongated tufts. Kamtschatka.

Snowy Auk. Mormon Glacialis. Leach. Temm.

Black; beneath, white; a broad black collar; bill, very high, moderately compressed, with two grooves before the nostrils. Arctic parts of Europe and America.

M. Temminck distinguishes under the name of Staryques (PHALERIS) the species whose bill is less elevated.

Alca Cristatella, Vieill. Gal. 297, or *Staryque Cristatelle,* Tem. Col. 200. Pal. Spic. Zool. v. pl. 1, of which *A. Pygmæa* is the young.

Blackish; beneath, lighter, tinged with bluish; a frontal tuft of six or eight feathers curling over the bill; sides of the head, with long slender white feathers; ridge of bill, hardly compressed: young, black; beneath, white; no tuft. North Coast of Asia.

Perroquet Auk, Lath. Syn. v. t. 95, f. 2, 3, head. *A. Psittacula,* Pall. Spic. Zool. v. pl. 2, of which *A. Tetracula,* ib. pl. 4, is the young.

Black; belly, white; above, behind the eye, and a spot above, white; ridge of bill, compressed. Adult,

bill, red; young, bill, dusky. North Coast of America and Asia.

To these may probably be added,

Ancient Auk. Alca Antiqua, Gmel.

Blackish; belly, white; cervical feather, long, linear, white. North Coast of America; and

Genus CERORHINCA, Ch. Bonaparte.

Bill, curved, compressed, longer than high, surmounted at the base by a long blunt process; nostrils pervious, not feathered; intermediate between *Phaleris* and *Mormon*.

Phaleris Cerorhinca, Bonap. *Cerorhinca Occidentalis*, Bonap. Amer. Orn. iv. t.

Blackish; belly, whitish; a few slender elongated white feathers at the corner of the eyes and mouth; bill, yellow. West Coast of America.

The PENGUINS, properly so called, ALCA.* Cuv.

Have the bill more elongated, and in form of the blade of a knife; there are feathers at the base of it, as far as the nostrils; their wings are decidedly too small to support them, and they therefore never fly.

We sometimes see on our coast in the winter time

* Alca, Alk, Auk, the name of the Penguin, in the Feroe Islands and in the North of Scotland. That of Penguin given first by the Dutch, indicates their oily secretion. See Clusius, Ex. 101. It is Buffon who has transferred this name exclusively to the northern Auk.

The Common Penguin. Alca Torda and Pica. Gm. Enl. 1004; the adult, 1003; the summer plumage, Edw. 358, 2. Briss. vi. 8, 2. Brit. Zool. pl. H. 1.

Black, above; white, underneath; a white line on the wing, and one or two on the bill. The male has moreover the throat, black; and a white line from the eye to the bill. The size of this bird is nearly that of the duck.

The *Razor Bill* of the English. The *Alca Balthica*, *A. Sulcata*, and *A. Minor*, of authors.

The Great Penguin. Alca Impennis, Buff. ix, 29. Enl. 367. Edw. 147.

Is nearly the size of the goose; its colours are similar to those of the last bird, but its bill is altogether black, with eight or ten furrows, and there is a white oval spot between the bill and the eye; its wings are shorter, in proportion, than those of any other species in the genus. It is said that it lays but one egg, spotted with purple.

When young, bill, smooth; no white frontal spot. The Arctic Seas of both Continents.

The Genus Aptenodytes, Forster.

Is still less volatile than the penguins; its small wings are furnished only with vestiges of feathers, at first sight almost like scales; its feet are more posterior than in any other bird, and will support it only by resting on the tarsus, which is enlarged like the heel

of the foot of a quadruped, and within which are found three bones, attached together at their extremities. These birds have, moreover, a small thumb directed inwards, and their three anterior toes are united by one entire membrane.

They are found only in the Antarctic Sea, where they never come on shore but to build; they get at their nests only by a painful drawing themselves along on the belly.

They may be divided by the bill, into three subgenera.

The APTENODYTES, properly so called,

Have it slender, long, and pointed, the upper mandible is a little bent towards the end, and covered with feathers for one-third of its length, where the nostril is placed, from which a furrow runs to the end.

Patagonian Penguin. Apt. Patagonica, Gm. Enl. 975.

Is of the size of a goose; slate-coloured above, and white underneath; with a black face, surrounded with a yellowish cravat. They dwell in great flocks in the vicinity of the Straits of Magellan and as far as New Guinea. Their flesh, although black, is eatable.

Penguinaria Patachonica, Shaw, Mus. Lever. 11. Nat. Misc. t. 409. Cym. Phys. t. 20.

CATARRHACTES,* Briss.

Have the bill strong, slightly compressed, pointed, rounded on the upper side, with the point a little bent, the furrow from the nostril terminates obliquely, at the lower third of the edge.

The genus *Spheniscus* of Temminck.

The Crested Penguin, Lath. *Apt. Chrysocoma*, Gm. Enl. 984. Vieill. Gal. 298.

Is as large as a stout duck; black, above; and white, underneath; with a white or yellow crest on each side of the occiput. It is found near the Falkland Islands and New Holland. It leaps sometimes out of the water while swimming; and deposits its eggs in a hole on shore.

Shaw, Nat. Misc. t. 437. *Penguinaria Cristata.*

Red-footed Penguin. Lath. *Apt. Catarrhactes*, Edw. 49.

Bill and feet, red; head, brown. Southern Ocean. According to Temm. it is the young, and to Kuhl, the female, of *A. Chrysocoma*.

Papuan Penguin. Apt. Papua, Sonn. 1st Voy. pl. 115, and Vieill. Gal. 299.

Bill and feet, reddish; occipital spot, white. Falkland Islands.

* Catarrhactes is the Greek name of a very different bird, which could fly well, and precipitate itself from on high on its prey. It was probably a species of gull.

Little Penguin, Lath. *Apt. Minor*, Lath. Syn. 3. pl. 103, and Hist. t. 180.

Bill, black; feet, whitish. New Zealand.

Antarctic Penguin, Lath. *Apt. Antarctica*, Com. Goeth. ij. t. 4. South Seas.

Black above; glossy-white underneath; black streak from chin to hind head.

Magellanic Penguin, Lath. *Apt. Magellanica*, Comm. Goet. iij. t. 3. Miller, Cym. Phys. t. 34.

Black above; white underneath; white streaks on sides of the head, and black band on breast. Magellan Straits and Falkland Islands.

Hairy Penguin, Lath. Hist. *Aptenodytes hirsutus*, Gray.

Brown; covered with thickset hair like feathers; toes, three. South America. Length, two feet and a half.

Woolly Penguin, Lath. Hist. x. t. 181. *Aptenodytes Lanatus*, Gray.

Brown; covered with downy fur-like feathers; toes, three. Length, two feet, eight inches. Museum of Lord Stanley.

Chiloe Penguin. Aptenodytes Chiloensis, Lath.

Body, with ash-coloured down; toes, four.

Three-toed Penguin. Apt. Mölinæ, Lath.

Blue; beneath, white; toes, three: feathers, hairlike. Chili.

Here should doubtless be added the genus,

Apterix, Shaw.

Southern Apterix. *Apterix Australis*, Shaw, Misc. t. 1057, 1058. *Apterous Penguin*, Lath. H.

Bill, slender, grooved its whole length; wing, reduced to a short spur; body, covered with hair-like feathers.

SPHENISCUS.* Briss.

Have the bill compressed, straight, irregularly furrowed at its base; the end of the upper mandible bent, that of the lower, truncated; the nostrils in the middle, and exposed.

Cape Penguin, Lath. *Apt. Demersa*, Gm. Enl. 382, and 1005. *Apt. Torquata*, Sonn. 1st Voy. t. 114, appears to be the female.

Black, above; white, underneath; the bill, brown, with a white band in the middle; the male has a white eyebrow; the throat, black; and a black line on the breast, continued along each flank. It inhabits especially about the Cape, where it builds in the rocks. See Edw. t. 94. f. 2.

New Holland Penguin, Lath. H. *Aptenodytes Australis*, Gray. *New Holland*, called *Gur—Roo-mul.*

Mixed grey and brown above; beneath, rufous white; bill, black. Length, two feet.

The family of

LONGIPENNES

Includes the birds proper to the main ocean, which, by means of their great capability of flight, are

* A name given by Mœring to *Fratercula*, and by Brisson to *Aptenodytes*, from σφήν, an angle, or corner.

spread everywhere, and are met by navigators in all seas. They may be known by their thumb being free, or by its absence altogether; by their very long wings; and by their bill without indentations, but bent at the extremity in the first genera, and simply pointed in the rest. Their lower larynx has but one proper muscle on each side; their gizzard is muscular, and their cœcum short.

The Petrels, Porocellaria, Lin.

Have the bill bent at the end, the extremity of which seems to consist of a piece articulated to the rest; their nostrils are united in one tube, imbedded in the back of the upper mandible; their feet have only, in place of a thumb, a claw or spur implanted in the heel. Of all the palmipedes, these keep themselves the most distant from the shore; and hence when a tempest happens they are frequently obliged to seek for refuge on rocks in the sea or on vessels, whence they have derived the name of tempest birds. The French name, *Petit Pierre*, is taken from their habit of walking on the water by the help of their wings. They make their nests in the clefts of rocks, and eject on those who attack them an oily liquid, with which it seems their stomach is always filled. Most of them inhabit the sea coasts of the Antarctic Pole.

They are more particularly named *Petrels*, (*Procellaria*,) in which the lower mandible is truncated.

Giant Petrel. Procel. Gigantea, Gm. Lath. Syn. III. pl. 100,

Is the largest species, and inhabits only the southern seas, and is bigger than a goose. Its plumage is blackish, but there are varieties with more or less white.

In the same seas is found

Pintado Petrel. Proc. Capensis, Enl. 964, (t. 90); of the size of a duck; spotted above with black and white; white beneath. Navigators frequently mention it. They call it the Cape pigeon.

We sometimes see on our own coasts

Fulmar Petrel. Proc. Glacialis, Enl. 59, Brit Zool., pl. M. f. 1.

White, with an ashy mantle; the bill and feet yellow; of the size of a large duck. It builds on the steep coasts of the British islands, and in all the north.

Petrel hartie, Tem. Col. 416.

White; crown of head, bill, end of webs, wing, loins, and tail, black; back and rump, ash; tarsi and base of webs, yellow.

Procel. Bérard, Freycinet, 37.

Small; body, blackish; beneath, whitish; bill, black, with white spots; feet, lead coloured.

Cinereous Petrel. Proc. Cinerea, Lath.

Ash-brown; beneath, white; tail, wedge-shaped,

rounded, as long as the wing; claws, rounded; feet, yellow. Kuhl Beitr. t. 10, f. 12. Forster MSS. t. 92. Kuhl arranges it with the *Puffins*.

Brown-banded Petrel. Proc. Desolata, Lath.

Ashy-black; forehead, orbits, and beneath, white; tail and quills, black tipt; tail, wedge-shaped, as long as the wings; tarsi, shorter than the middle toe. Kuhl Beitr. t. 10, f. 7.

Turtle Petrel. Proc. Turtur, Forster.

Grey; eye-streak, and beneath, white; tail and quills, black tipt; tail, longer than the wings; claws, square; tarsus, as long as the middle toe; bill and feet, pale. Length, nine inches. Pr. Velox. Banks, MSS. Cop. Kuhl, Beitr. t. 10, f. 8.

Grey Petrel. Procellaria Grisea, Lath. *P. Lugens*, Banks, MSS. t. 21,22. Forster, MSS. t. 93. Kuhl, Beitr. t. 10, f. 9.

Body and lower wing-coverts, ashy-black; feet, pale; tail, rounded, as long as the wings; claws, falcate; bill, compressed; black nasal tube, globose. Antarctic Seas.

Some small species, with the bill a little shorter, and the legs a little higher, with the plumage black, THALASSIDROMA, Vigors, are most especially known to sailors by the name of stormy birds, or Mother Carey's chickens.

Stormy Petrel. Proc. Pelagica, Briss. vi. 13, 1. Wilson's Amer. vij. 59, 6. Edw. 90,

Is the most common, and is not much bigger than a

lark; high on its legs; altogether brown except the rump, which is white, and a white stripe at the end of the great wing-coverts. When this bird seeks an asylum in the rigging, it is a sign of a storm.

Proc. Leachii, Tem. Jour. Acad. Phil. vj. pl. 9, f. 1.

Bluish-black; head and neck, ashy-black; tail-coverts and wing-band, white; tail, naked, forked, as long as the wings; claws, foleate, acute, deflexed. *P. Fuliginosa*, Lath.? *P. Atlantica*, Bonap. MSS. Tarsus, one inch; nostrils, straight; length, eight inches.

Proc. Wilsonii, Ch. Bon. Wilson Amer. vij. 70, 6. Id. Jour. Acad. Phil. vj. pl. 9, f. 2.

Sooty-black; vent and upper tail-coverts and tips of wing-coverts, white; tarsus, one inch and a half long; tops of nostrils, recurved; tail nearly even, rather shorter than the wings; base of web, yellow. Length, seven inches. The *P. Oceania*, Forster, Icon. t. 12, Cop. Kuhl, Beitr. t. 10, f. 1, and Licht. Forster, who described the wing-coverts white edged, and the base of web yellow.

P. Grallaria, Licht. *P. Oceania*, Bonap., not Forster, Pl. Enl. t. 993.

Tail, slightly niched, one inch shorter than the closed wings; tarsi, one inch and three-quarters long, brownish-black; belly, vent, flank, and some under wing-coverts, and upper tail-coverts, entirely white; nostrils, tips recurved; webs, black. Pacific Ocean. The *P. Echasse*, Tem. is this and the former combined. East Indies.

P. Furcata, Lin.

Bluish-ash; throat, white; wings, ashy-black; tail, forked, as long as the wings; bill short, well deflexed, rather long, black; feet, bluish.

American Petrel. Proc. Fregatta, Lath., Rochef. Antill. p. 152.

Black-dorsal feathers, white-edged; chest, abdomen, and upper tail-coverts, white; tail, equal; claws, lamellated; bill and feet, black; tarsus, longer than the middle toe. Kuhl, Beitr. t. 10, f. 3, head.

Proc. Marina, Vieill. Gal. 292.

Black; eyebrows and side of neck, white; tail naked, as long as the wings; bill and feet, black; web, yellow, black-edged; legs very long. South Seas. Kuhl Beitr. t. 10, f. 2, head.

We separate, with Brisson, under the name of PUFFINS,* PUFFINUS.

Those in which the end of the lower mandible is bent towards the base with that of the upper, and in which the nostrils, although tubular, open not by a common orifice, but by two distinct holes. Their bill is more elongated in proportion.

Shear-water Petrel. Proc. Puffinus, Gm. Enl. 962,

Is ash-coloured above, and whitish underneath, with the wings and tail black. The young is deeper in

* The name of the second species on the coasts of Scotland.

colour. Its size is that of a crow. It is found in nearly all the seas.

Manks Petrel. Procel. Anglorum, Tem. Edw. 359, which has been for a long time confounded with *Proc. Puffinus.* It is about the size of the woodcock; black above, white beneath, which inhabits in countless flocks the northern coasts of Scotland and the neighbouring islands, and which the inhabitants salt for winter provision.

Dusky Petrel. Procel. Obscura, Vieill. Gal. 301.

Brownish-black; beneath, white; tail, rounded, subequal, longer than the wings; claws, sharp; bill, slender; feet, yellow. Kuhl Beitr. t. 10, f. 11, head,

Pacific Petrel. Proc. Pacifica, or *Fuliginosa,* White, 252, which is probably not different from *Proc. Æquinoctialis,* Edw. 89.

Sooty-black; throat, white; tail, wedge-shaped, rounded, shorter than the wings; feet, black; claw of hind toe very large; tarsi, shorter than the middle toe. Length, eighteen inches. Edw. t. 29, and Kuhl Beitr. t. 10, f. 5, head.

P. Fulginosa, Bank. not Lath. Kuhl Beitr. t. 10, f. 6.

Sooty-black; tail, wedge-shaped, as long as the wings; hind toe, large; tarsi, shorter than the middle toe; bill, compressed, black; nostrils, short. Length, sixteen inches.

P. Hastata and *P. Leucocephala*, Forster, MSS. t. 97, 98, Kuhl. Beitr.

Brownish-black beneath; forehead, nape, and wing-coverts, white; feet, yellow; tail, acute, wedge-shaped, as long as the wings. Length, sixteen inches.

And probably—

Nectris Munda, Forster, Banks, MSS. t. 24.
Nectris Fuliginosa, Banks, MSS. t. 23.
Procellaria Hiemalis, Brehm, allied to *P. Glacialis*.
Puffinus Sericeus, Lesson, Man. 402.

Navigators speak sometimes under the name of petrels, of certain birds of the Antarctic Seas, which may be divided into two genera.

PELECANOÏDES, Lacep. HALODROMA, Ill.,

Which with the bill and form of the petrels or puffins, have the throat capable of dilatation like the cormorants, and are altogether without a thumb like the albatros.

Diving Petrel. Proc. Urrinatrix, Gm.

Blackish-brown, with a tint of blue; beneath, shiny-white; wings and sides, greyish-white. Forster, MSS. t. 88. *Puffinaria Garnotii*, Lesson, Voy. Coq. t. 46.

The genus *Puffinaria*, Lesson.

And

PACHYPTILA, Ilig.,

Which, in other respects similar to the petrels, have the nostrils separated like the puffins. The bill is

enlarged at its base, and its inner edges have vertical laminæ, pointed, and very fine, analogous to those of the ducks.

Broad-billed Petrel. Procel. Vittata and *Cærulea*, Forst.

Tail, wedge-shaped, rounded, shorter than the wings; above, bluish-ash; tips of quills and wing-coverts, black. Forster, MSS. t. 87, Kuhl Beitr. t. 11, f. 13, head. Indian Seas.

The ALBATROS, DIOMEDEA,* Lin.,

Are the most massive of all water birds. Their bill, large, strong, and trenchant, has marked sutures, and is terminated by a thick crook, which seems to be articulated; their nostrils are cylindrical, short, and bent on the sides of the bill; their feet have no thumb, nor even the little claw which exists in the petrel. They inhabit all the southern seas, and live on the fry of fish, mollusca, &c.

Wandering Albatros, Lath. *Di. Exulans*, Lin. Enl. 237, Vieill. Gal. 293,

Is the best known species to our sailors, and is called

* The ancient name of certain birds, inhabiting the island of that name near Tarentum, and which were said to receive the Greeks, but to attack the barbarians. As to the word albatros, I find that the earliest navigators of Portugal called the boobies, and other sea birds, *Alcatros*, or *Alcatras*. Dampier applied this name to the present genus; Grew changed it into *Albitros*, and Edwards to *Albatros*.

by them the Cape Sheep, on account of its size, white plumage, with black wings, and because it is more particularly abundant about the Tropic of Capricorn. The English also call it the *Man of War Bird.* It is a great enemy to the flying fish. It makes its nest in elevated land, and lays numerous eggs, which are good to eat. Its voice is said to be as loud as that of an ass. When young, *Sooty* or *Brown Albatros,* Lath.

Found in the Antarctic Seas of the two worlds; according to Temminck the *Chorolule Albatros* is the young.

Many albatroses are observable with more or less brown or black; but it is not yet established whether they are distinct species, or varieties. Such are,

Chocolate Albatros, Cook's Voy. *Diom. Spadicea,* Gmel.

Dark chocolate-brown; belly, pale; face, wings, and beneath, white; bill, pale. Pacific Ocean.

Short-tailed Albatros, D. Spadicea, B. Lath. *D. Brachyura,* Tem. Enl. 963. *D. Chinensis,* Tem.

Grey-brown; bill and feet, pale; tail, short. China. Southern Asiatic seas.

Eye-streaked Albatros. D. Melanophris, Tem. Col. 456.

Back, wings, tail, and streak through the eye, black; the rest, dirty-white.

Yellow-nosed Albatros. D. Chlororhynchos. Lath. V. pl. 94. Col. 468.

Bill, black; base and upper edge, yellow; body above, blue-black; beneath and rump, white.

Sooty Albatros. D. Fuliginosa, Col. 469.

Sooty-brown, with white before the eyes, and a black bill.

The Gulls. Larus,* L.

Have the bill compressed, elongated, pointed, with the upper mandible bent towards the end, and the lower forming underneath a salient angle. Their nostrils, placed towards the middle, are long, narrow, and bored through; their tail is full; their legs rather long; and the thumb, short. They are dull and voracious birds, which abound on the sea-shore, and live on all sorts of fish, carcasses, &c. They build in the sand, or in clefts of rocks, and lay but few eggs. When they advance far inland, it is a sign of bad weather. Several species are found on our coasts, and as their plumage varies much with age, they have been still more multiplied. Generally, when young they are spotted with grey. Buffon calls

* The Greek name of these birds. *Gavia* in Latin, whence *Gabian* in Provençal. In French they are named *Mauves*, or *Mouettes*, from their German name, *Mœve*. Goëland, used first by Feuillée, is a corruption from their English name, Gull.

GOELANDS,

The large species, which are bigger than a duck.

Black-headed Gull. Larus Marinus and Nævius, Gm. Enl. 990, adult, and 266, young.

Is one of the largest, which, at first spotted with white and grey, becomes finally altogether white, with a black mantle; the bill is yellow, with a red spot underneath; the feet are reddish, and *Pen. Brit. Zool. t. L.*, and not Pl. Enl. according to Temminck.

Glaucous Gull. L. Glaucus, Gm. Naum. 1st. Ed. 36.

This differs only in having the mantle of a bright ash-colour. The young is also spotted.

M. Temminck also distinguishes,

Herring Gull. L. Argentatus, Lath. Enl. 253.

Mantle, bluish-grey; quills, black at the point, tipped with white, reaching much beyond the tail; shaft, black; first primary only with a white spot beside the narrow tip; tarsus, nearly three inches long; nostrils, linear. Europe and America.

Larus Leucomela, Vieill. 61.

Head and mantle, black.

Larus Pacificus, Lath. is perhaps the young.

The MAUVE, or MOUETTES,

Are smaller species.

Silvery Gull, Lath. *L. Fuscus, L. Flavipes*, Meyer. Frisch. ij. t. 18. Naum. 1st. Ed. f. 51. b.

Is entirely white, except the mantle, which is black, and the feet yellow.

Pl. Enl. t. 990, according to Temminck.

Ivory Gull, Lath. *L. Eburneus*, Gm. Enl. 994.

Entirely white, with black feet. Of Greenland and Spitzbergen, but sometimes travels into Europe.

The *Common Gull, L. Cyanorhynchus*, Meyer, Enl. 977. Briss. vj. 16, 2.

Is in old age of a fine white, with a bright-ash coloured mantle; the first quills of the wings are in part black, with white spots at the end; the bill and feet are of lead colour. It lives in a great measure on shell-fish. The *Larus Lanus* of Gmel. and authors.

L. Ridibundus, L. Hybernus, and *L. Erythropus*, Gm. Enl. 969 and 979. Briss. vj. 17. 1. Naum. Vogl. t. 32, f. 44.

Is similar to the last, except that it has when young the end of the tail black, and black and brown on the wing; the head of the adult becomes brown in spring, and remains so all the summer. Enl. 970. The bill and feet are more or less red. It is called *Laughing Gull*, from its cry.

Black-headed Gull, Bonap. *L. Atricélla,* Pall. Nov. Com. Pet. xv. 22, 2. Cates. I. 89. Wilson's Am. ix. 74, 4.

Mantle, dark bluish-ash; quill, quite black; bill, strong; feet, dark-red; tarsus, nearly two inches long; head, in summer, dark lead-colour; young, brownish, skirted with whitish and rusty; tail, with a black subterminal band. South America and Mediterranean.

L. Leucopterus, Faber. *L. Glaucoides,* Temm. *L. Argentatus,* Sabine. *L. Arcticus,* Magellevray.

Mantle, pale bluish-ash; quills, greyish-white, white at the point, reaching to the tip of the tail; shafts, pure-white; head and neck, pure-white, in summer. Arctic Circles.

L. Cirrhocephalus, Vieill. Gal. 289, or *Poliocephalus,* Lich. Neuwied Zool. Beitr. t.

Head, throat, neck, and back, bluish-grey; body beneath, snow-white; primary quills, black and white. Brazils, Var, head, white. *Gabiota Circicienta,* Azara. South America.

White-eyed Gull. L. Leucophtalmus, Lich. Col. 366.

Brown; head, face, front of neck, tail, half-collar, and lower part of the body, pure-white; back, ash; hood and quills, black; bill, red, black tipped; feet, orange. Red Sea. Length, sixteen inches; wing, two inches longer.

Forked-tailed Gull. L. Sabini, Leach. Lin. Trans. 12, t. 29.

Head and hind neck, dark-ash; breast and belly,

white; back, darker ash; inside of mouth and circle round the sides, vermillion. Greenland.

Litlle Gull, Lath. Naum. Voy. t. 3. f. 72. *L. Minutus*, Falk. Voy. 3. 29.

Mantle, pearl-grey; quills, white at the tips; shafts, blackish; tarsus, one inch long; hind toe, very small; claw, straight, hardly apparent; hood, black; young, spotted with ash and blackish. North of both Continents.

L. Melanurus, Tem. Col. 459, and Tiles, Voy. de Krusent. pl. 57.

Back and wings, dark ash; quills, larger coverts, shoulders, and tip of tail, white; bill yellow, tip red, black between. Japan Coast.

To these we may add,

L. Argentatoides, Brehm.

Back and wings, bluish-grey; quills, black at the tip, reaching a little beyond the tail; shafts, black; first quills, broadly, white tipped; tarsus, two inches and a half long. Europe and America.

Black-hooded Gull. Lar. Melanocephalus, Tem. Man. ij.

Bill, thick and strong; mantle, bright ash; tip of wing, quills white. Eastern Europe and Asia.

Fish-eating Gull. Larus Ichthyœtus, Pallas, Gmel. Voy. t. 30, 31.

Size of Bernacle Goose. Grey; head and neck, black; wing quills, white some tipped; with black. Mouth of the Ganges, and South Africa.

L. Dominicanus, Licht. *Grande Mouette*, Azara, n. 409.

Like *L. Fuscus;* bill, stronger, higher; tip, more curved; back, when adult, black; length, two feet; Shores of Brazils.

L. Maculipennis, Licht. *Mouette Cendrée*, Azara. n. 410.

Like *L. Ridibundus*; wing with a broad black band, beneath, base, and inner web of the first six primaries, black, with an elliptical white spot near the tip; bill and feet, red. Length, 15 to 18 inches; when young, outer-quill, quite black, with a lanceolate-white spot.

L. Hæmatorhynchus, Licht.

Lead-coloured grey; middle of back and wings, black; wings, white marked; bill and feet, blood-red. Length, 18 inches.

L. Andouinii, Bull. Sci. Nat. xi. 302. Pl. col. t. 480.

Head, neck, chest, sides, belly, rump, and tail, white; back, scapulars, and wing-coverts, black; bill, red, with two black cross rays; eyelids, golden; feet, black. Sardinia.

L. Roseus, Macgillevray, Jard. Illust. Zool. t.

Back and quills, pale-grey; head, chest, and abdomen, pale rose-red; neck, with a black ring; two middle tail-feathers longer than the rest. North Ocean. Length, 14 inches.

Kittiwake Gull, Lath. *L. Tridactylus* and *L. Rissa*. Gm. Briss. vi. 16. 1 and 17, 2.

Very like *Ridibundus*, is distinguished, nevertheless, by a short and imperfect thumb. The young is more or less spotted with brown and black. Enl. 387.

From the goëlands and common gulls have been distinguished

The STERCORAIRES, Briss. LABBES, Buff. LESTRIS,* Illiger.

Have the nostrils membranaceous, larger than in the others, with their orifice nearer their point, and the edge of the bill; their tail is pointed. They pursue bitterly the little gulls, to take from them their food, and even, according to what some say, to devour their excrement; whence their name.

Arctic Gull, Lath. *L. Parasiticus*, Gm. Enl. 762. Edw. 148.

Is deep-brown, above; white, underneath; the two middle quills of the tail are twice the length of the rest. It is very rare here; the young is entirely brown, and is then the *Larus Crepidatus*, Gm. Enl. 991, and better, Edw. 149.

Skua Gull, Lath. *Larus Cataractes*, Gm. Brit. Zool. pl. L. 6.

Of the Arctic regions; as big as a goeland; brown, with the base of the quills of the wings white.

* Ληστρὶς, Thief. The name of the bird among the Swedish fishermen. M. Vieillot has changed it to STERCOREUS.

*Lestris Pomarinus,** Tem.

Size of a mouette; brown, above; white, underneath, with a brown collar on the breast.

The *Larus Parasiticus*, Meyer, Voy. ij. t. 21. *Lestris Pomarina*, Bonap. Arctic Gull.

The TERNS, or SEA SWALLOWS. STERNA,† Lin.

Derive their name from their wings being excessively long and pointed, and from their tail being pointed and their feet short, which give them an appearance, and a mode of flight, analogous to the swallows. Their bill is pointed, compressed, straight, without bend or projection; their nostrils are oblong, situated towards the base, and pierced from side to side. The membranes which unite their toes are strongly emarginated; hence they swim but little. They fly in every direction, and with rapidity, on the surface of the water, uttering loud cries, and carrying off adroitly from the surface the mollusca and little fish, on which they feed. They also come inland to lakes and rivers.

Great Tern. Sterna Hirundo, L. Enl. 987. Frisch. 219. Naum. 37, f. 52. Wilson, vij. t. 60, 1.

Is common in spring, or on fresh waters. In its

* I dare not affirm the identity of the *Lestris Catarractes* of Freyc. 38, and of *Stercoreus Pomarinus*, Vieill. Gal. 288, with the above species. According to Tem. the last is *Lest Cataractes*.

† *Stern*, or *Tern*, latinized by Turner, and admitted by Gesner.

adult state it is white, with a bright ash mantle; black thighs; red feet; and bill with a black tip. A foot long.

Lesser Tern. *Sterna Minuta*, L. Enl. 996. Wilson, Am. v..t. 60, 2. Naum. 38, f. 55.

Differs in nothing from the Great Tern, except in size, being one-third less. The forehead is white.

The *Sterna Argentia*, Pr. Max. seems to be closely allied to this.

Sandwich Tern. *St. Cantiaca.* Albin II. 88.

Is bigger than the Great Tern, and has the bill black, with the tip yellow. The young is *S. Striata*, Gm. Lath. vi. pl. 98.

Caspian Tern. *S. Caspia.* Pal. Sparm. Mus. Carl. 62. Meyer, Ois. d'Alm, II. 6. Sav. Ois. d'Egypt, pl. 9, f. 1.

Is the largest of our species. White, with an ash mantle, the occiput mixed black and white; the bill is red, and the feet black.

Black Tern. *St. Nigra.* *St. Fissipes*, and *St. Nævia.* Enl. 338, and 924. Frisch. 220.

Has the tail less deeply forked. Yellow, with the

mantle spotted with black; but when adult it is nearly all over blackish-ash.

Bearded Tern. St. Inca. Less. and Gam. Voy. de la Coq. pl. 47.

Of the coasts of Peru. Black, with red bill and feet; a band on the cheeks, and pendant feathers on the cheeks, white. Peru. Capt. Lord Byron. Mus. Brit.

Rose-coloured Tern. St. Dougalii. Mont. Vieill. Gal. 290.

Crown and nape, black; body, above, bluish-grey; beneath, rosy white; primaries, black-edged; two middle tail feathers, longest, narrow, very thin. English Ocean.

Gull-billed Tern. St. Anglica. Mont. or *Aranea*, Wils. Am. viij. 72, 6.

Arctic Tern. St. Arctica, Tem.

Bill, and legs, red; crown, and nape, black; beneath the eye, a white streak; body, above, deep ash; part of belly, white; middle claw, largest. The Arctic Circle. Bonap. Am. Orn. jv. t. *Sterna Argentata*, Brehm.

White-winged Tern. St. Leucopareia, Natt.

Bill and legs, black; back, wings, quills, and tail, grey; head, and beneath, white. Germany.

Mustachio Tern. St. Leucoptera, Tem. Schinz. Ois. de Suisse (frontisp.)

Bill and legs, red; head, and upper parts, black; lower

part of back, and scapulars, ash; wing-coverts, ash; inner webs of first two quills, white-banded. Southern Europe, and the Mediterranean.

When young, bill, black; nape and belly, white; crown and back, brownish; wings and tail, ash; rump, white.

The foreign species are,

Black-naped Tern. Sterna Media, Horsf. Nape black; crown, black and white; forehead and body above, white. Java.

Allied Tern. Sterna Affinis, Horsf. White; back and wing coverts, greyish lead-colour. Java.

Hoary Tern. Sterna Grisea, Horsf. Grey forehead; collar and beneath, white. Java.

Slender Bill Tern. Sterna Tenuirostris, Tem. Pl. Col. t. 202.

Bill, straight, very slender, black; legs, greenish; Tarsi, short; web, complete; tail, conical, longer than the wings, blackish-grey; crown, white; neck, bluish-grey. East Africa. Length, eleven inches.

Cayenne Tern. St. Cayana, Enl. 988.

Bill, elongate, stout, orange, blue-grey; beneath, white; nape, black; quill-shafts white; tail, much forked; tarsus, eleven and a quarter inches long, black; web, entire; crown, black in summer. Bonap. Amer. Orn. iij. t.

St. Melanauchen, Tem. Col. 427.

White, above greyish; bill feet, back of neck, and band enclosing the eye, and outer band of the first quills, black. Celebes. Length, thirteen or fourteen inches.

St. Melanogaster. Id. Col. 434.

Chest and back, ash-grey; wing-coverts, bluish; quills and tail, whitish-grey; crown, nape, abdomen, and under tail-coverts, black; lores and cheeks, white. Ceylon and Java. Length, ten and a half inches. *St. Javanica,* Horsf.

Sooty Tern. St. Fuliginosa. Wilson. Amer. Orn. xiii. t. 72, f. 7.

Bill, black; front exterior edge of the outer tail-feathers, and all beneath, white; tail, deeply forked; webs, entire.

Marsh Tern. Sterna Aranea. Wilson. A. Orn. viij. t. 72, f. 6.

Bill, very short, stout, black; quills, shaft white; tail, slightly forked; tarsus, one and a-half inches long, black, equal to the middle toe; webs, deeply indented; hind nail, straight; crown, deep black in summer.

Sterna Bergii, Licht.

Bill, long, compressed, arched, white; base, brownish; tail, forked, rather longer than the wing; occiput, crested. Length, eighteen inches; crown, in summer black. Cape of Good Hope.

Sterna Galericulata, Licht.

Bill, long, compressed, straightish, white; tail, forked, two inches longer than the wings; occiput, crested. Length, nineteen inches; bill, three inches. Brazils. Crown and forehead, in summer, white; occiput, and spot before the eye, black.

Sterna Magnirostris, Licht.

Hatis à Tête noire. Azara, 413. *Guacuguacu.* Marcgr. Spix. t. 104.

Bill, long, strong, straight, white; tail, cut out, three inches shorter than the quills. Length, fifteen inches. Bill to forehead, two and a half inches; tarsus, one inch; frontal band, white, narrow; crown, black. When young, black-clouded. *Hatis à Bec court.* Azara, 414.

Sterna Infuscata, Licht.

Above, sooty; bill, strong, straight, like the feet, black; tail, forked, rather longer than the wings. Length, thirteen and a half inches. Bill, two inches; in winter, eyebrows and belly white. East Indies.

Sterna Nitzschii. Kaup. Bull. Sci. Nat. vij. 251. —*Sterna Senex.* Leach. Congo Exped.—*Sterna Oahuensis.* Bloxan. Byron Voy. p. 251.

We may distinguish from the other sea swallows,

The NODDIES,

Whose tail is not forked, and nearly equals the wings. They have, also, under the bill, a slight swelling, the first indication of that of the mouettes. Only one is known.

Noddy Tern. Sterna Stolida. Lin. Enl. 997. Bonap. Amer. Orn. iv. t.

Blackish-brown; the upper part of the head, whitish.

Famous among sailors for the blundering with which it precipitates itself against ships.

The *St. Philippensis*, Son. 1st Vol. pl. 85, does not appear to differ from Stolida. *St. Fuscator*, Lath. Briss. vj. pl. 21, appears also to belong to this subgenus, as well as *St. Tenuirostris*, Tem. Col. 202.

The Skimmers. Rhynchops, L.

Resemble the sea-swallows, by their little feet, their long wings, and forked tail; but are to be distinguished from all other birds by their extraordinary bill, in which the upper mandible is shortest, and both are flatted into simple laminæ, with the edges corresponding. They can feed only on what they snatch from the surface of the water, in flying, with their lower mandible.

Black Skimmer. Rhynchops Nigra. L. Enl. 357.

White, with black thighs and mantle, and a white band on the wing, and the external quills of the tail white outwardly; the bill and feet are red, and it is scarcely so big as a pigeon. It inhabits the seas of the Antilles. Lath. Hist. t. *Coupeur d'Eau.* Azara, n. 408.

Yellow-billed Skimmer. Rhyn. Flavirostris. Vieill. Gal. 291.

Body, above, brownish-grey; beneath, white. Senegal.

(Not New Holland.) Length, sixteen inches. When adult, *Rhynchops Albirostris.* Licht. Black forehead; tips of secondaries, and beneath, white; bill white; base, blood-red.

Ashy Skimmer. R. Cinerascens. Spix. 102, and the *Short-billed Skimmer. Rh. Brevirostris.* Id. 103, appear to be only varieties of the first species.

The Family of Totipalms.

Is remarkable by having the thumb united with the other toes in a single membrane; and notwithstanding this organization, which makes more perfect oars of their feet, they almost alone of all the order perch on trees. All of them are good flyers, with short feet. Linnæus made three genera of them, the first of which should be divided.

The Pelicans. Pelicanus, L.

Comprehend all those in which a space at the base of the bill is found denuded of feathers; their nostrils are mere clefts, the aperture of which is scarcely perceptible; the skin of their throat is more or less extensible, and their tongue is very small; their thin gizzard forms with their other stomach, a large bag; they have a moderate or small cœcum.

The Pelicans, properly so called. Onocrotalus, Briss. Pelicanus, Il.

Have the bill very remarkable for its great length,

* Pelicanus and Onocrotalus are two latinized Greek names of this bird

its straight form, large, and flatted horizontally by the hook which terminates it, and finally by the lower mandible in which the flexible branches sustain a membrane naked and dilateable into a voluminous bag. Two furrows pass along the bill, and the nostrils are hidden therein; round the eyes is naked, as well as the throat; the tail is round.

The Common Pelican. Pelec Onocrotalus, L. Enl. 87. Edw. 92. Frisch. 186.

As big as a swan; entirely white, slightly tinted with flesh-colour; the hook of the bill as red as a cherry. This bird is more or less spread throughout the old world, builds in the marshes, and feeds on live fish. It is said, that they carry provisions and water in their throat-bag. The variations of the age of this bird are not so far determined that a safe enumeration of the species of its genus can be made.

I see no difference between the Common Pelican and *P. Roseus* of Son. 1st Voy. 54. As to *P. Manillensis*, Id. 53, Sonnerat himself says, that he believes it to be the young of *Roseus*. Neither do I see any difference between *P. Fuscus*, Edw. 93, and that of the Pl. Enl. 965, which is cited under *Roseus*, but which is much more like *Manillensis*. M. Temminck considers this figure as representing the young of the common species. The *Philippensis* of Briss. vi. pl. 56, is the same individual as was the subject

of Pl. Enl. 965; hence both are young *Onocrotali.*

Onocrotalus Phœnix, Lesson.

The white parts have a rosy tint, when the bird is alive and in health.

That of Pl. 957, cited also under *Fuscus*, appears really to be a species the same as Vieill. Gal. 276.

Ashy-brown; head and neck, vary with grey and white; primaries, black. West Indies. *P. Vieillotii.*

P. Perspicillatus, Tem. Col. 276.

White, (rosy-red, when alive); small wing-coverts, very long; middle wing-coverts, scapular, quills, and tail, black; orbits, very large, naked. Length, 48 inches. South Seas.

P. Rufescens, and *P. Trachyrhynchos*, are doubtful.

The CORMORANTS. PHALACROCORAX, Briss. CARBO, Meyer. HALIEUS, Il.*

Have the bill elongated, compressed, the end of the

* Cormorant is a corruption of *Corbeau Marin*, on account of its black colour. It is indeed the Water Crow of Aristotle.

Phalacrocorax (Bald Crow) is the Greek name of this bird indicated by Pliny; but not employed by Aristotle. Carbo is applied to it only by Albert, perhaps after its German name *Scharl.* To all these names, M Vieillot has moreover added that of *Hydrocorax*, Gal. pl. 275.

upper mandible bent, and that of the lower truncated; the tongue is very small; the skin of the throat less dilatable; the nostrils are like a small line, which do not appear to be pierced; the nail of the middle toe is indented like a saw.

The CORMORANTS, properly so called,

Have the tail rounded with fourteen feathers. We have one,

The Cormorant. Pelicanus Carbo, L. Enl. 927. The young, Frisch. 187 and 8. Briss Zool.

Of a black-brown, undulated with deep black on the back, and mixed with white toward the end of the bill, and the forepart of the neck. In the male, round the throat and the cheeks are white, and the occiput is also crested. As big as a goose. They build in clefts of rocks or on trees, and lay three or four eggs.

The Little Cormorant. Pelic. Graculus, Gm. Enl. 974, the young.

Rather smaller, with deeper black, and more bronzed, no white before the throat, the feathers of the back more pointed; is more scarce than the common species.

Tail, shorter, only equal to one-fifth of the length of the body; tail-feathers, twelve; dorsal-feather, ovate; Length, 25 inches; eyes, pale grey-brown.

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Crested Shag. *Cor. Longap,* Tem. *Pel. Cristatus,* Olass. Voy. en. Isl. French translation, Pl. 44. Col. 322, and Vieill. Gal. 276.

Only differs from *H. Graculus* in having a crest.

African Pelican. *Pel. Africanus,* Sparm. Mus. Carl. 3. 61.

Middle of back and rump, glossy-black; forepart of neck and belly, dusky-white; scapulars and coverts, blue-grey, black tipped. Africa.

Spotted Shag. *Pel. Nævius,* Lath. Syn. 3. Pl. 104, and Sparm. Mus. Carl. 1. 10.

All above and forepart of neck, nearly black; round the eyes, denuded; sides of neck, breast, and belly, whitish with small band. New Zealand. *P. Punctatus,* Lath. *Hydrocorax Dilophus,* Vieill. Gal. t. 275. Lath. H. t. 104?

Dwarf Shag. *Pel. Pygmæus,* Pall. Voy. Append. Pl. 1.

Not bigger than a teal; black with a green cast about the neck. Caspian Sea and Cape of Good Hope.

To these we may add,

Halicus Brasilianus, Licht. *Procellaria Brasiliana,* Lath. *Zaramagullen Noir,* Azara, n. 423. *Carbo Brasilianus,* Spix. t. 106.

Tail, one-fourth the length of the body, of twelve feathers; dorsal-feathers, elongate, pointed. Length, 28 inches; tail, 7 inches. Brazils. Eyes, fine-blue in all ages. Mus. Berlin.

Halicus Lucidus, Licht.

Grey-brown, shining; beneath, white; sides and thighs, brown; tail-feathers, fourteen. Length, 30 inches; tail, 6 inches. Cape of Good Hope. Mus. Berlin.

Carbo. Desmarestia, Payradain, Dict. Sci. Nat. x. t. 302.

Blackish-green; not crested; feet and bill, yellow; tail-feathers, fourteen. Female, above, greenish and white; beneath, white.

Carbo Javanicus, Horsf.

Java. Length. 16 inches. Mus. India House.

Pelicanus Goemardi, Garnot. Voy. Coq. 109. t. 48.

Ash; sides of neck, white; face, naked, carunculated, like the feet, red; wings, behind, and tail, brown; back and front of wings, white, spotted. Callao Bay.

The Frigate Birds.*

Differ from the cormorants in having a forked tail, and short feet, the membranes of which are deeply emarginated, and by an excessive extent of wings, and a bill in which both mandibles are bent at the end.

Their wings are so powerful that they fly to immense distances, every where, but principally be-

* M. Vieillot calls them Tachypetes.

tween the tropics, pouncing on the flying fish, and striking the boobies to compel them to disgorge their food. Only one is thoroughly known.

Greater Frigate Pelican. Pelecanus Aquilus. L. Enl. 961. Vieill. Gal. 274.

Plumage black, more or less varied with white under the throat and neck; bill red. The expanse of its wings is said to be sometimes as much as ten or twelve feet.

These have been rather gratuitously raised to the rank of species, *Pelec. Minor*, Edw. 309; *T. Minor*, Vieill., and *Leucocephalus*, Buff. Ois. 8, pl. 30; and perhaps also the *Pelec. Palmerstoni*, Lath.

The Boobies. Sula, Briss. Dysporus,* Il.

Have the bill straight, slightly compressed, pointed, with the points a little arched, the edges indented like a saw, with the teeth directed backward; the nostrils are prolonged into a line, which extends to near the point; the throat is naked, as well as round the eyes, and a little extensible; the nail of the middle toe is notched; the wings are much less than those of the Frigate, and the tail is a little angular.

* Sula is the name of *Pel. Bassanus*, L. in the Feroë Islands, according to Hoyer, Clus. Exot. 36. The English name is from their stupidity. The genus *Morus* of Vieillot.

They are named from the stupidity with which they suffer themselves to be attacked by men and birds, especially by the Frigates, who strike, and thereby compel them to abandon the fish they have caught. The most common species is

The Gannet. Pel. Bassanus. Lin. Enl. 278. Brit. Zool. pl. 50. Naum. Sup. 56, f. 106.

White; the first quills of the wings, and the feet, are black; the bill is greenish; nearly as big as a goose. Its name is taken from a small island in the gulf of Edinburgh, where they breed greatly, although they cover but one egg at a time. They come often on our coasts in winter. The young is brown, spotted with white. Enl. 986. The other species are not as yet sufficiently determined.

Dysporus Capensis. Licht.

White; all the quills and tail feathers, black; base of shafts, white. Length, thirty-four inches. All the wing-coverts, white. Cape of Good Hope. Mus. Berlin.

Booby. Pel. Sula. L. Enl. 973. Cates. I. 875. Vieill. Gal. 277.

Belly and vent, white; when young, all brown.

To these may be added—

Lesser Gannet. Pelecanus Piscator. Lath. *Dysporus Piscator.* Illiger. Mus. Berlin.

Tail, wedge-shaped; body, white; quills, all black; face, red. China.

Sula. Brasilienis. Spix. Braz. t. 107.

Pale brown, spotless; belly, whitish in the middle; quills, rather long; tail, brown. Brazils. *Krustern*, Voy. t. 18.—See also, *Pelecanus Parvus.* Lath. *Morus Parvus.* Vieill.

Anhinga. Plotus,* L.

On a body and feet similar to those of the cormorant, these carry a long neck, a little head, and a straight, slender, and pointed bill, with the edges notched; the eyes and naked part of the face, are moreover, as in the pelican, and these birds have also the habit of building, like them, on trees.

Certain species or varieties are known in both continents; they are not bigger than a duck, but their neck is longer.

Black-bellied Darter. Pl. Melanogaster, Enl. 959 and 960. Vieill. Gal. 278. Wilson, 9, 74. Latham, vi. 96.

Back, scapulars, and wing-coverts, striped black and white; quills, belly, thighs, and tail, black; head,

* Anhinga is the name of these birds among the Topinambous, according to Marcgrave, *Plotus* or *Plautus*, in Latin, signifies flat-foot. Klein has used it for one of his family of Palmipedes, and Linnæus has applied it to Anhinga.

neck, and upper part of breast, light-brown; side of head and neck, with broad white line. Ceylon, Java.

Yellow-necked Darter. Anhi. Levaillant, T. Col. 380, *Plotus Levaillantii*, Licht.

Black; back and wing-coverts, white lined; front of neck, yellowish; band on side of eye, white; head above and nape, brown, black dotted. Length, 23 inches. Cape of Good Hope. *P. Rufus* is, perhaps, the young of Senegal.

The PHAETONS. PHAETON, L. Commonly called Tropic birds. May be known by two narrow, very long feathers which they carry in their tail, and which at a distance seem like a straw. Their head has no part naked; their bill is straight, pointed, indented, and tolerably strong; their feet are short, and their wings long, hence they fly great distances out at sea, and as they seldom quit the torrid zone, their appearance indicates to sailors the vicinity of the tropics. On land, where they seldom go, except in the affair of nidification, they perch on high trees.

Only a few species or varieties are known with white plumage more or less varied with blackish, and which are not bigger than a pigeon.

Common Tropic Bird. P. Ætherius, Enl. 369, and 998.

Body as big as a wigeon, but to end of long tail-

feathers, 2 feet 10 inches; patched black and white. Leach. Zool. Mus. t. 118.

Red-tailed Tropic Bird. *Ph. Phœnicurus*, Enl. 979. Vieill. Gal. 279.

Pale-rose colour; bill and tail, red; feet, black. South Seas.

The Family of LAMELLIROSTRES,

Has the bill thick, covered with a soft skin rather than a true horn, its edges furnished with laminæ, or small teeth; the tongue is large and fleshy, indented on the edges; their wings are of moderate length. They inhabit the fresh rather than the salt waters. In the majority of them, the trachea of the male, is enlarged near its bifurcation into capsules of divers forms. The gizzard is large, very muscular, and the cœca long.

The great Genus of DUCKS. ANAS, L.

Comprehends those palmipedes whose large and flat bill is furnished at its edge with a range of protruding thin laminæ, transversely placed, which appear to be destined to suffer the water to pass, when the bird has seized its prey. They are divided into three subgenera, whose limits are, however, not very precise.

The SWANS. CYGNUS, Meyer.

Have the bill as large in front as in the rear, and

more high than wide at its base; the nostrils are nearly midway of its length; the neck is very much elongated. These are the largest birds of their genus. They subsist principally on grains and roots of aquatic plants, and thence their intestines, and especially the cœca, are very long. Their trachea has no enlargement.

We have two species in Europe.

Tame, or Mute Swan. Anas Olor. Gm. Enl. 913,

With a red bill bordered with black, and with a round protuberance at its base; the plumage is white as snow. The young have the bill lead-colour, and the plumage, grey. This is the species, which, when domesticated, becomes so great an ornament to our lakes and rivers. The gentleness of its movements, the elegance of its form, and the dazzling brightness of its plumage, have rendered it the emblem of beauty and innocence. They live both on fish and vegetables, fly very high and fast, and swim with rapidity taking the wind with their wings, which also serve them, on occasions, as powerful weapons against their adversaries. They build among reeds in ponds, and lay six or eight greenish-grey eggs.

Wild, or Whistling Swan. Cygnus Gelbus, Bechst. *Anas Cygnus,* Gm. Edw. 150, Brit. Zool. pl. 2. Naum. 1st Ed t. 13, f. 27,

Has the bill black, with a yellow base; the body is

white tinted with yellowish-grey, and entirely grey when young. This species, which is very like the last in its exteriors, is perfectly distinguishable from it, interiorly, by the trachea, which is bent, and in a great measure penetrates into the cavity of the keel of the sternum, which particularity is common to both the sexes, and which does not exist in the domesticated species. This is unadvisedly named the wild swan, and the singing swan. The song of the swan at its death, is a mere fable.

It is the *Cygnus Musicus*, Bechst. *C. Melanorhynchus*, Meyer. Arctic Circle.

Black Swan. *Anas Plutonia*, Shaw, Nat. Mus. pl. 108. *An. Atrata*, Lath. Vieill. Gal. 286.

Lately discovered in New Holland; of the size of the common swan, but of a less elegant carriage. It is entirely black except the primary quills, which are white, and the bill, and a naked skin at its base, which are red. *Cygnus Atratus*, Vieil. Mus. Brit.

We may add—

Black-necked Swan, *Anas Melanocephalus*, and *A. Nigricollis*, Gmel. *Cygnus Nigricollis*, Shaw. *Cyg. Melanocephalus*, Vieill.

White; head, and neck, black; bill, red. Mus. New York, from whence our figure. South America, and south of Magellan.

Canada Goose, *Anas Canadensis*, L. Enl. 346, Wilson Am. 67, 4, appears to me also a true swan.

Dark-ash; head, neck, and tail, black streaked, and throat, white; bill and feet, black; tail of eighteen feathers.

Ana. Canadensis, Vieill. *Bernicla Canadensis*, Boie. North America; breeds with *An. Anser*. *Cygnus Canadensis*, Steph.

We can hardly separate from the swans certain birds, less elegant indeed, but with the same bill. Many of these have a tubercle at its base.

Chinese Swan. *Anas Cygnoides.* L. Enl. 347.

This species is brought up in our poultry yards, where they breed easily with the geese. Of a whitish-grey, with a grey-brown mantle. The male may be known by a little tuft of feathers which hangs under the bill, and by a large tubercle which surmounts the top of it. *Swan Goose*, Berwick. *Cygnus Sinensis*, Steph.

Some have the bend of the wing armed. They form the genus *Plectrophanes*, Leach, (not Meyer).

Spur-winged Swan. *Anas Gambensis*, L. Lath. Syn. III. p. 2, pl. 102,

Is a much rarer species, so named by its first describers. Is remarkable for its size, its high legs, and the tubercle on its front, and by the two thick spurs with which the bend of the wings is armed. Its plumage is purple-black; the throat, fore-

part, and under-part of the body and wings are white.*

Black-backed Swan. An. Melanotos, Enl. 937. *Ipecati apoa*, Marcg. Vieill. 285. *Plectrophanes Melanotus*, Steph. Greenish black above; white underneath; head and half the neck white, with black spots, and the feathers ruffled. Africa Mus. Brit. India, Gen. Hardwicke. Zool. Ind. t. 217. Nat. Misc. t. 421. The female has the crest smaller.

The GEESE. ANSER, Briss.

Have a moderate or short bill, narrower before than behind, and higher than wide at its base; their legs are more elevated than in the ducks, and nearly to the middle of the body; hence they walk better. Many subsist on herbs and grains. They have no enlargement at the base of the trachea, which in the known species does not form any fold.

The *Geese*, properly so called,

Have the bill as long as the head; the ends of the laminæ fringe the edge of it, and appear there like pointed teeth.

The *Common Goose. An. Anser.* L.

Which has assumed all sorts of colours in domestication, comes from a wild species, which is grey,

* Buffon has confounded this with a variety of the Egyptian duck, Enl. 982. Latham's figure is defective, by showing only one spur; nor is the protuberance prominent.

with a brown mantle, undulated with grey, and the bill entirely orange. *Ans. Cinereus*, Meyer, Albin, 90. Naum. 1st Ed. pl. 41, f. 60. But there is another species, nearly allied to this, which comes to us in autumn, and may be known by the greater length of its wings, and by some white spots on the forehead; its bill is orange, but black at the base and at the tip. *Bean Goose*, Lath. *Anas. Segeter*, Meyer, Enl. 985. Frisch. 155. Naum. 1, c. 42. f. 61.

We add,

Anser Rufescens, Brehm.

Dark ash; beneath whitish, strongly tinged with rusty; wings, not reaching to the tip of the tail; bill, short, straight, hardly depressed, black and orange. Iceland.

Anser Medius, Temm. *Anser Cineraceus*, Brehm.

Dark ash; beneath whitish; rump, blackish; wings, when closed, reaching to the tip of the tail; bill and feet, yellow. Length, twenty-three inches. Arctic Circle.

We see often enough in winter,

White-fronted Goose. Anas Albifrons. Gm. Edw. 153. Naum. 1st Ed. 43, f. 62.

Grey, with a black belly, and white forehead.

The north of both continents produces a fourth species.

Snow Goose. An. Hyperborea. Gm. Wilson, Am. 8, 68, 5; and the young, 69, 5. Naum. 1st Ed. Sup. pl. 23, f. 46.

White, with the bill and feet red; the quills of the wings black at the end. This bird sometimes quits the stormy north for our more temperate climates. The young has more or less grey. It is the *An. Cærulescens* of Gm. Edw. 152.

Anser Jubatus, Spix. Braz. t. 108.

Variegated; head, neck, chest, vent, and mirror on wings, white; neck, behind, as if maned; belly and back, reddish; wings and tail, violet-black; axilla, spinous. Body, twenty-two inches. Brazils.

See *Anas Grandis*, Gmel. Siberia; *Anas Indica*, Lath. India; *A. Montana*, Gmel. Cape of Good Hope; *A. Candidus*, Vieil.; *A. Coscoroba*, and *A. Hybrida*, Gmel., all from South America; *A. Beringii*, Gmel. Kamtschatka.

The Bernacles*

Are distinguishable from the common geese by a shorter, smaller bill, whose edges are not apparent beyond the extremities of the laminæ.

The north of Europe sends us, in winter, the species so celebrated by the fabulous story of its growing on trees, like their fruit.

* The Scotch name of *Anser Leucopsis*. *Klake* is the Scotch name for goose.

The *Bernacle, or Clakis.* Lath. *An. Erythropos.* Gm.; or better *An. Leucopsis.* Bech. Enl. 855. Frisch. 189. Naum. 1, c. 39, f. 77.

The mantle is ash-colour; the neck black; the forehead, cheeks, throat and belly, white; the bill is black; and the feet grey.

Brent Goose. An. Bernicla. Gm. Enl. 342, and better Frisch. 156. Naum. 1, c. 39, f. 78. Wilson, 8, 72, 1.

Is from the same country. Its head, neck, and quills of the wings, are black; the mantle, grey-brown; a spot on each side of the upper part of the neck, and the under part of the tail, are white; the bill is black; the feet brown.

The *Bernicla Torquata,* Boie.

Some have the bend of the wing spurred. They form the genus *Chenalopex,* Steph.

Egyptian Goose. An. Ægyptica. Gm. Enl. 379, 982, and 3.

Remarkable for the brightness of its colours, and the small spur on the wings; belongs also to this subgenus. It may be brought up in domestication, but has always an inclination to fly away. It is the *Chenalopex,* or *Fox Goose,* revered by the

ancient Egyptians on account of its attachment to its young.*

The *Chenalopex Ægyptica*, Steph.

Magellanic Goose. An. Magellanica, Enl. 1006.

Head, and part of neck, ferrugineous-brown; beginning of the back, breast, and all beneath, barred ferrugineous and black; rump and tail, dusk; wing-coverts, and bar on tail, white. Straits of Magellan.

Antarctic Goose. An. Antarctica; which is nearly allied to the last. Mus. Carl. 37, and Voy. de la Coquille, Zool. 50.

Male, white; female, black, with transverse white lines. Terra del Fuego.

Bustard Goose. An. Leucoptera, Brown. Il. 40.

Head, neck, and beneath the body, white; white bar on the wing; back, and wing-coverts, crossed with dusky black lines. Falkland Islands.

Red-breasted Goose. An. Ruficollis and *Torquata*, Pall. Spic. vj. pl. 9, which it is said comes as far as Germany.

Head, and crown, and narrow stripe of back, black; forehead and cheeks, sprinkled with white; white spot between bill and eye; neck, rufous, with black and white band; back and wings, black; belly white. Siberia. Found rarely in Britain. Mus. Brit.

* M. Geoffroy St. Hilaire, in the Ménagerie de Mus. Art. Oie d'Egypt.

Coromandel Teal. *An. Coromandelica*, Enl. 949, and 950.

Head and neck, white, spotted black; top of head, black; lower part of neck, striated with black lines; upper part of body, brown, with a green and red gloss; beneath, white. Coromandel Coast.

Madagascar Teal. *An. Madagascariensis*, Enl. 770.

Top, and forepart of head and neck, white; the remainder, dusky-greenish; patch of pale green, bordered black and white, below the ears; lower part of neck and breast, rusty, undulated black; upper part of body, dark glossy-green; beneath, white. Madagascar.

Others have been named, but are doubtful, as, *Variegated Goose*, *Anas Variegata*, Gmel. New Zealand. *Painted Goose*, *Anas Picta*, Gmel. Staaten Island. *Grey-headed Goose*, *Anas Cana*, Cape of Good Hope.

Cereopsis. Lath.

Is a bird of New Holland, very similar to the bernacles, with a still smaller bill, in which the membranes are much larger, and extend, in part, on the forehead.

New Holland Cereopsis. Lath. Syn. iij. t. 138. *Cer. Cinereus.* Pl. Col. 206. Vieill. Gal. 284.

The only species known; grey; of the size of the goose.

The *Cereopsis Novæ Hollandiæ*, Lath. *Anser Griseus.* Vieill.

The DUCKS, properly so called, ANAS, Meyer.

Have the bill less high than wide at its base, and as large, or larger, at its extremity than toward the head; the nostrils are nearer its back and base. Their legs, shorter, and more behind than in the geese, render their walking less easy than in these birds; their neck is less elongated, their trachea enlarges at its bifurcation into cartilaginous capsules, of which the left side is generally the largest.

The species proper to the first division are those whose thumb is edged with a membrane, have the head thicker, the neck shorter, the feet more behind, the wings smaller, the tail stiffer, the tarsi more compressed, the toes larger, and the palmations more entire. They walk much worse, feed more exclusively on fish and insects, and dive more frequently.

This division forms the genera PLATYPUS, Brehm. (not *Platypus*, Shaw,) HYDROBATES, Tem., not *Vieil.* nor *Boie.* and FULIGULA, of Ray, and Ch. Bonap.

Among these we may distinguish, by the size and enlargement of the bill,

MACREUSE.*

Scoter Duck. Anas Nigra. Lin. Enl. 972. Naum. Sup. 14, f. 28 and 9. Brit. Zool. pl. 2, 6. Wilson Am. viij. 72.

Entirely black; greyish when young; the bill very

* This name comes probably by the bird being considered meagre food. Mr. Fleming translates it OIDEMIA.

large, furnished at its base with a protuberance. They live in great flocks along our coasts, principally on shell fish. The young female is *An. Cineraceus*, Naum. 1, c. 60, f. 91, 92. *Fuligula Nigra*, Bonap.

Velvet Duck. Anas Fusca, Lin. Enl. 956. Frisch. 165. Naum. l. c. Sup. f. 15 and 16. Wilson 72, 3.

Differs from the last by being altogether stouter; by a white spot on the wings, and a white stripe under the eye. The trachea has in its middle a circular enlargement, flattened vertically.

Black Duck. Anas Perspicillata, Lin. Enl. 995. Edw. 155. Wilson, Am. viij. 67, 1.

Has white on the occiput, and on the hind neck; and the naked yellow skin at the base of the bill also surrounds the eyes.

The last forms the genus *Macroramphus*, Lesson, not Leach.

Ural Duck. An. Mersa, and *Leucoptera*. French Translation of Pallas, Travels, pl. v. and vj. Naum. Sup. 40, f. 79, 80.

Head, and part of neck, white, with black patch on crown; forepart of body, yellow-brown, undulated black; beneath, greyish-brown, glossy; bill blue, the end marked with diverging striæ. Ural Mountain.'

Œdemia Leucocephala. Steph. *Fúligula Oxyura Leucocephala*, Ch. Bonaparte.

Loggerhead Goose, Phil. Trans. lxvi. *An. Brachyptera*, Lath. Voy. du Freyc. pl. 39.

Head and neck, and upper part of body, ash; wings, white-banded; beneath, dusky; vent, white; bill, orange, with black tip. Falkland Islands.

Race Horse, Wallis and Cook Voy. *Anas Cinerea*, Gmel. The genus *Micropterus*, Lesson, from its short wings.

New Holland produces a speckled species, remarkable for a large fleshy appendage under the bill.

The genus *Biziura*, Leach, and *Hydrobates*, Lesson.

Lobate Duck, Shaw. *An. Lobata*, Nat. Mis. viij. pl. 255, and Col. 406. *Biziura Novæ Hollandiæ*, Leach.

Dusky black, crossed with pale lines; quills and tail, black; knob on wings.

We may, moreover, separate

The GARROTS. CLANGULA, Leach,

Whose bill is shorter and narrower in front. At the head of these we may place the species whose tail has the middle quills, longest, which make it pointed.

The genus *Histrionicus*, Lesson.

Such are

The *Long-tailed Duck*. *An. Glacialis*, Lin. Enl. 1008. Edw. 280. Naum. 52, f. 76. Wilson, Am. viij. 70, f. 2. The young male, Enl. 999. Naum. 52, f. 76, B. The adult in the breeding season, Edw. 156.

White, with a yellow spot on the cheeks, and sides of

the neck; the breast, back, tail, and a part of the wings, black. It has the shortest bill of all the ducks. Its trachea, ossified at the base, has, on one side, as it were, five simple membranes, square, below which, it swells out into a bony capsule.

Harlequin Duck. *Anas Histrionica*, Lin. Enl. 978. Wilson Am. viij. 72, f. 4. Edw. 99. Naum. 1, c. 52, f. 77. And the female, *Anas Minuta*, 799. Edw. 197.

Ash-coloured; the male fantastically patched with white; the eyelids and flanks red.

Female *Anas Torquata*, Gmel. Pl. Enl. t. 789.

Both the above species come to us in winter, but at different periods of it.

The Common Garrots have the tail round or square.

Golden-eye Duck. *An. Clangula*, Lin. Enl. 802. The young *An. Glaucion*,* Lin. Frisch. 181, 182. Naum. 1, c. 55, f. 81, 82. Wilson Am. viij. 67, 6.

White; the head, back, and tail, black; a small spot before the eyes, and two white bands at the wing; the bill blackish. The female, ash, with a brown head. They arrive here from the north in winter,

* The Greek name of a duck, so called from the colour of its eyes.

and sometimes build in our ponds. The trachea, in the middle, has a large dilatation, the rings of which are somewhat mobile; it widens toward the bifurcation.

Spirit Duck. An. Albeola, Enl. 948, the same as *An. Bucephala,* Cates. 1, 95.

Head and neck, green-golden; behind the eyes, and patch on head, lower part of neck, breast, and beneath, white; rest, dusky and white. North America.

The EIDERS, named by Leach, SOMATERIA,

Have the bill more elongated than the garrots, mounting higher on the forehead, where it is bordered by an angle of feathers; but, notwithstanding, it is more narrow in front.

The genus *Platypus,* Lesson.

Eider Goose. Anas Mollissima, Enl. 208, 9. The adults of both sexes, Mus. Carl. 39. The young male of three years old, Edw. 98. Wilson Am. viij. 91, 2, 3. Naum. 64, f. 79, 80.

Whitish, with the thighs, belly, and tail, black; the female grey, with brown meshes. This bird is celebrated for the valuable down it furnishes.

King Duck. An. Spectabilis, Sparm. Mus. Carl. II. pl. 36. Edw. 154. Naum. 40, f. 58, 59.

Crown of head, and nape, pale-ash; base of bill,

green; middle of back, whole of belly and vent, black. Greenland. The *Grey-headed Duck*, Edw. Lewin, Br. Birds, t. 24, 5.

In the first, the branches of the bill are narrow and linear; in the latter, broad and circular.

See *Platypus Leisleri*, Brehm., from Coast of Greenland, and *P. Borealis*, Brehm.

The Millouins. Fuligula, Leach.

Have no other remarkable character than that of a large and flat bill. There are many species in France, in all of which it appears that the trachea terminates by a similar enlargement, forming a capsule, partly membranous, on the left side, supported by a frame, and bony ramifications.

The genus *Nyroca*, Flem., and *Aythia*, Boie.

Pochard Duck. *An. Ferina*, L., *An. Rufa*, Gm. Enl. 803. Naum. 1, c. 58, f. 87, 88. Wilson Am. viij. 90, 6.

Ashy, narrowly striated with black; the head, and top of the neck, red; the bottom of the neck, and back, brown; the bill clear lead-colour. Builds sometimes in the reeds of our ponds. Its trachea is nearly of equal diameter.

Red-crested Duck. *An. Rufina*, L. Enl. 928. Naum. l. 3, 32, f. 63, 64.

Black, with a brown back, and white on the flanks

and wings; the head red, with the feathers at the top of it elevated into a crest; the bill red. This species inhabits the shores of the Caspian, and is sometimes carried by the wind as far as this part of Europe. The trachea has two successive enlargements, besides the capsule of the bifurcation.

Scaup Duck. *An. Marila,* Lin. Enl. 1002. Brit. Zool. Q. Wilson Am. viij. 69, 3. Naum. 59, f. 90. The female, *An. Frœnata,* Mus. Carl. 38. Naum. 59, f. 90, B.

Ashy, striated with black; head and neck, black, changing into green; rump, and tail, black; belly, and wing-spots, white; bill, lead-colour. They sometimes visit us in small flocks, from the interior of Siberia. The trachea, which is at first very large, becomes narrower as it proceeds.

Female *White-faced Duck,* Sow. Miss. t. 62. *A. Marilla,* Boie.

Nyroca Duck. *An. Nyroca.* Gm. *An. Leucophtalmos,* Bech. The female *An. Africana,* Gm. Enl. 1000. Naum. 1, c. 39, f. 89.

Brown, with the head and neck red; a white spot on the wings, and the belly whitish; a brown collar at the bottom of the neck of the male. Builds in north of Germany, and seldom visits France. The trachea is enlarged in the middle.

Olive Tufted Duck, Sow. Misc. t. 21, and *Ferrugineous* and *Castaneous Duck*, Montague.

Tufted Duck. *An. Fuligula*, L. Enl. 1001. Frisch. 171. Naum. 1, c. 56, f. 83, 84. Wilson Am. viij. 67. The young, Enl. 1007. *An. Scandiaca*, Frisch. vj. 36, 1, 2.

Black; the plumes of the occiput elongated into a tuft; belly and wing-spot, white; bill, lead colour. They visit us regularly from the North all the winter.

The *European* is *Anas Cristata*, Ray. *Fuligula Cristata*, Ch. Bonap. Pl. Enl. t. 1001.

Bill much wider at the tip than at the base, glossy-black; belly, white; crest, large.

The *American Tufted Duck.* *Anas Fuligula*, Wilson, Am. Orn. viij. t. 67, f. 5. *Fuligula Rufitorques*, Ch. Bonap.

Black belly, and chin white; sides, waved with grey; collar, chestnut; bill with a bluish-white band; no crest. North America.

Pink-headed Duck. *Anas Caryophyllacea*, Lath., Syn. t. 119.

Dark-brown, waved; head and neck, pink. India. Mus. Gen. Hardw.

To these may be added, as foreign species—

Spinous-tailed Teal. *An. Spinosa*, Enl. 967, 968. *Anas Dominica*, Lin.

Dusky-brown, with white on the coverts; head with black streaks. Cayenne.

Western Duck. *An. Stelleri*, Pal. Spic. vj. pl. 5.

White, varied with black; mirror, metallic-black, edged with white; beneath, rusty; tail, of twelve feathers. North America. *Steller. Swensk.* Zool. ij. t. 62, *Anas Dispar.* Gmel. Penn. Art. Zool. t. 23.

Canvas-backed Duck. *An. Valisneria*, Wilson, Amer. Orn. t. 70, f. 5.

Grey-white, black-waved; neck, glossy-chestnut; chest-band, black; bill, straight; sides, parallel. North America.

Ruddy Duck. *An. Rubida*, Ib. 71, f. 5, 6, of which Prince Charles Bonaparte makes his subgenus *Oxyura*, on account of its pointed tail.

Bill, flat at the base; nostrils, small; linear tail-feathers channelled at the tip, reddish-brown; crown and neck, black; cheek and throat, white; very nearly allied to *Anas Leucocephala*, but tail-feathers channelled the whole length. *A. Jamaicensis*, Lath., perhaps a variety.

To these we have added—

Pied Duck. *Anas Labradora*, Wilson, Am. Orn. t. 69, f. 6, ♂.

Bill soft, at the tip black; head, neck, chest, breast, scapulars, wing-coverts, and secondaries, white; crown and collar, black. North America.

See *Iceland Duck*, *Anas Islandica*, Gmel. Pen. Art. Zool.—*Mexican Pochard*, *Anas Fulva*, Gmel., Mexico.—*Red* and *Ferrugineous Duck*, Pen. Br. Zool. t. 99.—*Anas Ferruginea*, Gmel.—*Red-breasted*

Duck, Lewin, Brit. Birds, vii., t. 224.—*Black* and *White Pochard*, Steph., *Anas Bicolor*, Vieill. South America.—*Gmelin Duck*, Lath.—*Anas Gmelini*, Gmel. Caspian Seas.—*New Zealand Duck*, *Anas Novæ Zealandiæ*, Gmel. New Zealand.—*Anas Virgata*, Pr. Max. Trav. ij. 113. Brazils,—and *Anas Punctata*, Burchel, Trav. 1811.

The ducks of the second division (for which Prince Chas. Bonaparte reserves the name of ANAS) have no membrane to the edge of the thumb. Their head and feet are smaller, their neck is longer, the bill more equal, and the body less thick; they walk better, and feed on aquatic plants and their fruits, as well as on fish and other animals. It appears that the enlargements of their trachea are of an homogeneous, bony, and cartilaginous substance.

Among these also some subdivisions may be established.

The SOUCHETS, RHYNCHASPIS, Leach,

Are very remarkable for their long bill, whose upper mandible, bent into a perfect semicylinder, is enlarged at the end. The cilia on the sides of it are so long and so slender, that they look like lashes. These birds live on worms, which they seek on the banks of rivers.

The genus *Clypeata*, Lesson, and *Spatula*, Boie.

Shoveler. *An. Clypeata*, L. Enl. 971, 972, Frisch.

161, 2, and 3, Wilson Am. viij. 67, 7, Naum. 49, f. 70 and 71,

Is a very beautiful duck, with the head and neck green, the breast white, the belly red, the back brown, the wings varied with white, ash-green and brown, &c. They visit us in spring, and they are excellent eating. The enlargement of the base of the trachea is inconsiderable. This species is the *Chenerotes* of Pliny.

Membranaceous Duck, An. Fasciata, Shaw, Nat. Mis. pl. 697.

Found in New Holland. The edges of the upper mandible are elongated into a membranaceous appendage.

There have also been named—

New Holland Shoveler, Lath., *Anas Rhynchotis*, Lath., and *New Holland Duck*, *Anas Membranacea*, Lath., both from New Holland, and perhaps *Soft-bill Duck*, Lath., *Anas Melanorhynchos*, Gmel., from New Zealand.

The TADORNES

Have the bill very much flatted towards the end, but swelling out into a globular form at the base.

*Shieldrake, An. Tadorna,** L. Enl. 53, Frisch. 166, Naum. l. c. 55, f. 103 and 4.

Is the most lively coloured of all our ducks; white,

* Tadorne, the name of this bird in Belon. Buffon, after Turner, thought, but erroneously, that it was the *Chenalopex* of the ancients. See above on the Goose of Egypt.

with the head green; a cinnamon-coloured zone round the breast; the wings varied, with black and white, red and green; common on the streams which fall into the North Sea and the Baltic, where they build in the downs, and oftentimes in abandoned rabbit-holes. The bifurcation is swelled out into two bony capsules, but little different from each other.

The *Tadorna Bellonii*, Steph., and *Tadorna Familiaris*, Boie.

Others of these ducks of the second division have parts of the head naked, and oftentimes a bunch on the base of the bill.

The genus *Caïrina* Fleming, and *Moschatus*, Lesson.

Muscovy Duck, *An. Moschata*, L. Enl. 989. Commonly, but improperly, called *Barbary Duck*.

Originally from America, where it is still found wild, and where it perches on trees. It is, however, much multiplied in our poultry yards, on account of its size. It breeds easily with the common duck. The capsule is very large, circular, flatted vertically, and altogether on the left side.

See also *Anas Nilotica*, and *Anas Regia*, Gmel., according to Stephens.

Some have the tail pointed. They form the genus *Dafila*, Leach.

Pintail Duck. *An. Acuta*, L. Enl. 954, Wilson Am. viij. 68, 3, Frisch. 160 and 168, Naum. 51, f. 74 and 75.

The upper parts and the flanks ash, with narrow

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stripes of black; underneath, white; the head tan-coloured; the tracheal capsule is smaller.

In others, the male has at least some elevated feathers on the tail.

*Mallard Duck. An. Boschas,** L. Enl. 776 and 7, Wils. Am. viij. 70, 7, Frisch. 158, 9.

To be known by its yellowish feet and yellow bill, and by the beautiful changeable green of the head and rump of the male. In our poultry yards they vary in colour like all domesticated animals. The wild ducks common in our marshes build in reeds, old trunks of willow trees, and sometimes on trees. The trachea is terminated towards its base by a large bony capsule.

Hook-billed Duck. An. Adunca, Albin Birds, ij. t. 96, 97, is a singular variety.

> See also *Curved-bill Duck,* Lath., *Anas Curvirostra,* Gmel.

Some have the head crested, and the bill a little narrower in front; and which, coming from abroad, are in most menageries; such as

Chinese Teal. An. Galericulata, L. Enl. 805 and 6, Vieill. Gal. 287.

In which the male has the quills of the wings enlarged, and standing vertically. Edw. t. 102. And,

* Βοσχας, the Greek name of the teal.

Summer Duck, An. Sponsa, L. Enl. 980 and 981, Wilson, viij. 78, 3.

The capsules are of moderate size, and round.

Edw. t. 101, metallic, throat with a pendant crest; mirror, purplish-blue, white tipt; under wing-coverts, white, black spotted; bill, small; builds on trees. North and South America, and West Indies.

Other foreign species have, with the bill of the duck, legs higher than those of the goose. They perch and build in trees.

Black-bellied Whistling Duck, An. Arborea, Enl. 804. Edw. t. 193.

Neck, back, and scapulars, brown; crown slightly crested, dusky; throat and beneath, white. Jamaica.

Red-billed Whistling Duck, An. Autumnalis, 826. West Indies. Edwards, t. 194.

Chestnut and white; vent and quills, black; white bar on wings.

Spanish Duck, An. Viduata, 808.

Back and breast ferruginous, with dusky lines; belly, light brown, spotted black; head, white; crown, black. Carthagena.

To these we may add,

Spotted-beaked Duck, Anas Maculirostris, Licht. *Canard à Bec tricolor,* Azara, 440.

Bill, brown; tip, black, base with two red spots; crown and nape, black; throat and sides of head, yellowish; neck and chest, ash, with round black spots; sides, rump, and vent, black and white banded. Length, fifteen or sixteen inches. Brazils.

Gerra Teal, Lath. H., *Anas Gerra,* Gray.

White; bill, top of head, back, collar, both ends of

wings, and tail, black ; centre of wings, metallic-green ; female, paler; wings, brown ; end of secondaries, white ; head with a black centre, and two black eye-streaks. Mus. Brit. India.

Radjah Duck. *Anas Radjah*, Lesson Voy. Coq. t. 49, *Anas Leucomelas*, Garnot.

Head, neck, and chest, front of belly, part of wings, and tips of wing-coverts, white ; part of wing, blackish ; mirror, shining-green. Bourou.

There is one among the number, whose feet are only semipalmated.

The genus *Anseranas*, Lesson.

Semipalmated Goose, Lath., *An. Semipalmata*, Lath., Sup. t. 139, Cuv. Mem. du Mus. 1827.

Head, neck, back, wings, tail and thighs, deep-brown ; the rest white. New Holland.

See also *Hawksbury Duck*, Lath., Supp. front. *Anas Jubata*, Lath., *Black* and *White Goose*, *Anas Melanoleuca*, Lath., all from New Holland.

Finally, among those with no notable distinction, we have, especially in winter,

Gadwal Duck, *An. Strepera*, L. Enl. 958, Naum. l. c. 45, f. 65, Wilson Am. viij. t. 71, f. 1.

Reticulated, and narrowly striped with blackish ; the wings red, with a green and white spot. The capsule of the trachea is small.

An. Penelope,* L. Enl. 825, Frisch. 164 and 169, Naum. f. 72 and 3.

With narrow blackish stripes ; the breast vinous ;

The Greek name of a duck with a red head.

the head red; the forehead pale, white-green, and black on the wings; the tracheal capsule round, moderate, and very bony.

The genus *Marcia* of Stephens, *Marcia Fistularis*, Steph.

Ruddy Goose, *An. Rutila*, Pal. Nov. Corn. Petrop. XIV. 22. *Tandora Rutila*, Steph.

Grey-headed Goose, *An. Cana*, and *Casarca*, Brown Ill. 41 and 42.

Spotted-billed Duck, *An. Pœcilorhynchos*, Ind. Zool. pl. 14,

Bill, black tip; yellow at the base; on the forehead, on each side, a rufous bare spot; above, deep brown, black towards the tail; bar on wings, and belly white. Ceylon.

American Wigeon, *An. Americana*, the *Jensan*, Enl. 955, Wils. viij. 99, 4.

Crown and forehead, yellowish-white; head and neck, speckled black and white; black glossy patch behind the eye; back, pale-rusty, waved with black lines; white patch on wing-coverts; beneath, white. North America.

Ilathera Duck, *An. Bahamensis*, Cates. 93.

Top of head, breast, belly, and thighs, rufous-grey; above, rufous-brown; cheeks, throat, and fore part of neck, white. Brazils.

Dusky Duck, *An. Obscura*, Wils. viij. 72, 5.

Blackish-brown; mirror, violet-blue, black-edged; under wing-coverts, pure-white. America.

Arched Duck. An. Arcuata, Gm. or *A. Paturi*, Spix. Braz. t. 109.

Brownish; front of head, throat, and lower part of the neck, reddish; occiput, black; middle of the neck, whitish; wings, black-green, humerus, black; speculum, shining-green, with a white band behind it. Body, thirteen inches.

To these we add—

Anas Javanica, Horsf. Java, *Anas Arcuata*, Cuv. *A. Sili*, Hamilton, MSS. n. 43.

Part of wings and base of tail, chestnut; back and lower part of wings, brownish-black; neck, dull, heavy, fulvous; chin, pale; belly, chestnut; belly and breast, varied with black. Java.

Among a number of small species, which are designated by the name of TEAL,

Garganey Duck, An. Querquedula, L. Enl. 946, and the old male. *An. Circia*, Frisch. 176, Naum. 47, f. 66 and 7.

Reticulated, with black on a grey ground; a white stripe round, and at the corner of the eye; and common in our ponds. The capsule is a bony, pear-shaped expansion.

Common Teal, An. Crecca, L. Enl. 947, Frisch. 174, Naum. 4, f. 68 and 69, Wils. Am. viij. 70, 4, Brit. Zool. pl. 2.

Marked with narrow blackish stripes; the head red, and a green band at the corner of the eyes, bordered with two whitish lines, &c. The capsule is pear-shaped.

White-faced Duck, An. Discors, Enl. 966, 403.

Back, brown, transversely waved with grey lines; lower part of neck before, breast, and belly, pale-rufous, marked with dusky spots; vent, black; wing-coverts, blue; wings with a white band. America. Wils. Am. Orn. viii. t. 68, f. 4.

Manilla Teal, An. Manillensis, Son. 1 Voy. 55.

Upper parts and sides of head and throat, white; neck, brown; wing-coverts, reddish-brown; back, yellow; the feathers black-margined; beneath, white. Manilla.

We merely refer to many others which have been named:—*Supercilious Duck, A. Superciliosa,* Gmel. New Zealand. *Georgian Duck, Anas Georgica,* Gmel. South Georgia.—*Crested Duck, Anas Cristata,* Gmel. Staaten Land.—*Backal Teal, Anas Formosa,* Gmel. China.—*Hind Teal, Anas Hina,* Gmel. China.—*Mexican Duck, Anas Novæ Hispaniæ,* Gmel. Mexico.—*Black-tailed Duck, Anas Melanura,* Gmel.—*Mareca Duck, Anas Brasiliensis,* Gmel.—*Cape Wigeon,* Lath., *Anas Capensis,* Gmel.—*Anas Bicolor, Cyanoptera, Cyanirostris, Flavirostris, Epicuteri, Jaspedea, Tzitzichoa, Versicolor, Kalmani, Platalea, Rubirostris, Spinicauda,* and *Torquata,* Vieillot.—*Falcated Duck, Anas Falcaria,* Gmel. Pen. Arct. Zool. t. 20. Siberia. —*Brown Duck,* Lath., *Anas Fuscescens,* Gm. Newfoundland.

Greenland Duck, Anas Borealis, Gm. Iceland.—*Solitary Duck, Anas Monacha*, Gmel.—*Damietta Duck, Anas Damiatica*, Gmel.—*Alexandrine Duck, Anas Alexandrini*, Gmel.—*A. Sarai*, Forst.—*Gattair Duck, Anas Gattair*, Gmel., from Alexandria.—*Sisœir Duck*, Lath., *Anas Sisœir*, Gmel.,— and *Arabic Duck, Anas Arabica*, Gmel., from Arabia.—*Kekuschka Duck, Anas Kekuschka*, Gmel. from the Caspian Sea.—*Dominican Duck, Anas Dominicana*, Gmel. from the Cape.

The genus MERGUS, L.,

Comprehends the species whose bill is more slender and more cylindrical than that of the ducks; each mandible armed, its entire length, on the edges, with small pointed teeth, like a saw, and directed backward; the tip of the upper mandible is crooked. Their appearance and plumage are like the duck; but their gizzard is less muscular, and their intestines and cœcums shorter. The enlargement of the lower larynx of the male is enormous, and in part membranaceous. They live on lakes and ponds, and destroy a great deal of fish.

Three species of them visit France in winter, whose variations of plumage have caused them to be multiplied by some naturalists. It is said that they build, in the north, between the rocks, or in reeds, and lay a great many eggs.

Goosander Mersanger, Merg. Merganser, L. Enl. 951, Naum. l. c. 61, f. 93, Brit. Zool. pl. N. Frisch. 190, Wilson Am. viij. 68.

Of the size of a duck, with red bill and feet. The

old male has the head deep green, the feathers on the top of it form a kind of tuft; the mantle is blackish, with a white spot on the wings; the neck and below white, slightly tinted with rose colour. The young and the female, *M. Castor*, Enl. 953, Frisch. 191, Naum. 61, f. 93, B, are grey, with a red head.

Red-breasted Merganser. Merg. Serrator, L. Enl. 207, Edw. 95, Naum. l. c. 51, f. 90, Wils. Am. viij. 69, 2, ♂.

With red bill and feet; the body varied, black, white, and brown; the head black-green, with a pendant crest at the occiput. The young and the female *H. à Manteau Noir*, Naum. 62, f. 95, have the head brown.

Smew Merganser, M. Albellus, L. Enl. 449, Frisch. 172, Naum. 63, f. 97, Brit. Zool. pl. N. 1, Wils. Am. viij. 71, f. 4.

With blue bill and feet; the body white, varied with black on the mantle; a black spot on the eye, and on the occiput. The young male and the female, *M. Minutus Mustelinus*, &c., Enl. 450, Brit. Zool. pl. N. 2, Naum. 63, f. 98, are grey, with a red head.

Among the foreign species, none are well determined but

Generic Characters of Birds.

ORDER PALMIPEDES.

1. Fratercula
2. Aptenodytes
3. Procellaria
4. Diomedea
5. Larus
6. Lestris
7. Rhynchops
8. Plotus
9. Anas communis
10. Mergus

London Published by Whittaker & Co Ave Maria Lane Dec.r 1829

1 Ash coloured Podargus
2 Epimachus promefil
3 Cowled Philedon *Merops monachus*
4 Variegated Chatterer
5 American Ostrich

London, Published by Whittaker, & C°. Ave Maria Lane, Oct. 1829.

Hooded Merganser, M. Cucullatus of Carolina, Enl. 935 and 936.

Head, neck, and back, dark-brown; head covered with erect, laterally flattened crest, dusky-white, edged with brown; beneath, dirty-white, waved; sides, buff. North America. Wilson Amer. Orn. viii. t. 69, f. 1 ♂.

Brasilian Merganser. M. Brasiliensis, Vieill. Gal. 283.

Crested body; above, slate-coloured; beneath, white; sides, spotted; bill and feet, black.

SUPPLEMENT ON THE PALMIPEDES.

On the general observations on this order in the text, it is quite unnecessary for us to enlarge here; we proceed therefore, at once, to our supplement on the divisions.

The first family is BRACHYPTERA; the first genus COLYMBUS; and the first subgenus that of PODICEPS, or the GREBES.

The grebes are not web-footed, but have the feet pinnated, or enlarged, by a membranous edge, like fulica, or the coots, in the last order. They belong, as do several of the genera included among the grallæ by Cuvier, to Dr. Latham's very judicious division of pinnatipedes * From their peculiar conformation, the grebes cannot walk well, nor do they fly without difficulty; but as the extent of their sternum gives them great muscular power, they cut the water with extreme facility, either at its surface, or in its depths, for they have sometimes been taken in nets at the depth of twenty feet and

* We cannot avoid, in this place, paying a just tribute of praise to this excellent ornithologist, whose merits, perhaps, are not always so duly appreciated as they ought to be. In the changes which he has made in the Linnæan system, he has exhibited a salutary cautiousness, united with an enlightened discrimination. The establishment of his *columbine* and *pinnated* orders, the clear characters on which his sections are founded, and his usually just allocation of genera, are ample proofs of this. As to his "double emplois" and casual inaccuracies, respecting foreign species, they are not to be attributed to himself, but to the state of the subject. Wherever the Doctor has had an opportunity of personal knowledge, the truth and fidelity of his descriptions are not to be excelled; and he has given us a vast deal of original and valuable matter, put forth without ostentation, and without the vain parade of learning, by which so many others have found an easy path to the temple of celebrity.

more. These birds, which live on small fish, on crustacea, on insects with elytræ, on spawn, and aquatic plants, inhabit rivers, lakes, and the shores of the sea.

Those which live on the fresh waters construct their nest with rushes, &c. interlaced, which they attach to the stems of reeds, resting it on their broken tops, or suffering it to float. They usually lay two or three eggs, but sometimes four or five, which are white, or of a whitish-green, waved with brown. Those species whose ordinary sojourn is the seas which bathe the coasts of France, usually nestle on those of England, in the hollows of rocks, from which the young, which probably remain in the nest until their wings have acquired sufficient force to serve them as a parachute, are obliged to throw themselves into the water.

The grebes which are found on shore, driven back by the waves, although their constant habit is to swim against the wind, are easily taken before they can succeed in setting themselves afloat again; but they give most violent blows with their bill. These birds usually seek to escape from danger by diving, and make little use of their wings to fly. As they are constantly in the water, even during the most rigorous seasons, they are covered with feathers, which from their elasticity, are directed inwards, and which form so close, firm, and lustrous a down, that it equally protects them from humidity and cold. Muffs are made of the covering of their breast, of a silvery white, which never become wet, and unite the elasticity of feathers to the brilliancy of silk, and the softness of down. Pallas tells us, that in the southern parts of Siberia there are such numbers of grebes, that the Barabynsk Tartars carry on a very lucrative commerce in this sort of peltry.

We must pass the species over, and proceed to the HELIORNIS.

This bird was formerly placed among the grebes. The

species of Surinam is remarkable, according to Brown, for having the head and body in perpetual motion. It lives on flies, and often becomes domestic. Gmelin adds, that it catches those insects with exceeding dexterity; but this peculiarity has been mentioned by Fermin as appertaining to another bird, which he calls "*Oiseau du Soleil*," which has been erroneously approximated to the bird in question. Concerning this bird, very little indeed has been ascertained, either as to its manners or its propagation. It is found in Paraguay, as well as Surinam, and there is another species in Senegal.

The DIVERS proper are northern birds, which swim extremely well, and dive with such celerity that they often evade a shot directed against them, sinking at the very moment the flash appears; so that the fowlers are obliged to conceal it from them, by placing a bit of pasteboard near the pan. These birds cannot support themselves on land except in a position nearly vertical, and by the assistance of their wings, which thus act as oars. Sometimes they fall with their belly flat upon the ground, and have no small difficulty in raising themselves up; accordingly, they come to land only during the season of reproduction. The eggs are two in number, and deposited by the female on small islets and promontories; they feed on fish, of which they are great destroyers, on spawn, on aquatic insects, and sometimes on certain plants. They are seen in our climates only when the rivers and ponds of cold countries are frozen; and as they fly very well, they return after the thaw to their northern habitat.

The *Colymbus Glacialis* inhabits the arctic seas of both worlds, and is very common in the Hebrides, in Norway, in Sweden, and in Russia. It is also found in the more northern parts of this kingdom, and generally along the coasts of the Atlantic; it is a bird of passage; it especially pursues her-

rings; it nestles in small islets on the edge of fresh waters; and the three eggs which the female lays, are marked with great and small spots, of a purplish-ash, on a ground of isabella white. Lewin is of opinion, that this diver, like the grebes, makes its nest, which floats upon the water, in retired places.

This bird is called *Imbrim* in the Feroë islands, *Ember-goose* in the Orkneys, and in Greenland *Tuglek*, or *Tudlik*. Though it flies but seldom, it rises to a very considerable height. When it has young ones, instead of sinking in the water to escape from its enemies, it attacks them boldly with its bill. Its feathers constitute an article of clothing for many of the northern tribes.

The *Colymbus Arcticus* is very rarely seen on the coasts of England or France, but is very common in the north of Europe, and frequently found on the lakes of Siberia, Iceland, Greenland, and even in Hudson's Bay. The Laplanders make their winter bonnets with its down, and in Norway its destruction is prohibited, because its cries serve as a presage of fine weather, or of rain. Fish, frogs, and insects constitute its food; and it makes, in reeds, and on the borders of lakes, a nest, in which the female deposits two eggs, marked with black spots upon a brown ground.

To the GUILLEMOTS the attribute of stupidity has been generally applied; yet probably without sufficient reflection on the peculiar conformation of the birds, and the inconveniences which must result from that peculiar conformation. The wings are so short and narrow, that the guillemot can scarcely flutter. The legs, from their position, are quite unfit for the purpose of walking; and the natural element of the bird is only on the bosom of the sea, where it swims with the greatest swiftness, and even dives below the ice.

The guillemots are nearly strangers to the temperate climates of Europe, though Pennant, on the authority of a

note communicated to him by Scopoli, tells us that they are to be seen upon the coasts of Italy. They are very common on those of Norway, of Iceland, of the Feroë islands, at Spitzbergen, Kamtschatka, Terra Nuova, at Nootka, and on the northern coasts of America and Asia. These birds, whose wings are fit only for a feeble flight, and one of short duration, on the surface of the arctic seas, rather employ them to accelerate their motions on the water when in pursuit of fish, of marine insects, of crabs, and other crustacea, which constitute their food. It is also by the assistance of these short wings that they clear the projecting edges of rocks, or jump from point to point, to the precipitous situations in which they build their nests. Though accustomed to the most rigorous cold, and often seen upon the floating islands of ice, yet, as they can find subsistence only in an open sea, they are forced to migrate in cases of complete frost. They then descend along our coasts and those of Holland and France, where families have been known to remain and establish themselves among the rocks.

The *Foolish Guillemot* (*Colymbus Troile*), which, during the greatest portion of the year, inhabits the arctic seas of both worlds, descends in winter along the borders of the Baltic sea. It is found on many parts of the English coast during summer, but does not so frequently appear in Holland or France. These birds assemble in large flocks, and construct their nests in the clefts of rocks, where the female lays some eggs of a greenish blue, more or less spotted with black. They are pointed at one end, and very large in proportion to the size of the bird.

The *Black Guillemot* inhabits the same countries as the preceding species. In winter, it is only a bird of passage along the shores of the Great Ocean, and is very rarely indeed seen in inland seas and lakes. These birds fly generally in couples, shaving the surface of the sea very closely, and

making a loud clapping with their little wings. They place their nest in the crevices of rocks of no great elevation, from which the young ones may throw themselves into the water, and thus avoid becoming the prey of foxes, which, according to the account of Anderson, in his "History of Greenland," are perpetually lying in wait for them. Spitzbergen, and Greenland, are the usual nestling places of these birds; but some are found to breed on the coasts of Wales and Scotland, and those of Gothland, in Sweden. The brood consists but of two eggs, ash-coloured, and marked with black spots.

This bird, according to Fabricius, is so distrustful, that it cannot be taken or killed, except by means of snares, laid near its nest. This trait agrees but little with the popular notion concerning the stupidity of the genus.

The habits of CEPHUS, a section formed by our author, of a single species *(Colymbus Minor)*, do not differ from those of the guillemots.

We now come to the PINGUINS, which our author has subdivided into two sections, the MACAREUX, and the *Pinguins* proper.

The former occupy, habitually, the most northern points and islands of Europe, of Asia, and of America: but they cannot remain at sea, except when it is calm weather. When the tempest surprises them far from shore, great numbers of them perish. Though they usually only shave the surface of the water, in flying, they yet can elevate themselves to a certain height. By night they retire into the clefts of rocks and caverns. On land, they cannot hold themselves upright, but by fixing their tarsi, as well as feet, upon the ground; and in their tottering walk they seem to rock from one side to the other. Their food consists in crustaceous animals, and they also live on shell mollusca, and small fish, which they take in diving. They make their nests in holes on the sea coast, which they enlarge with their bills and feet. Here,

either on the bare ground, or on a bed composed of feathers, and fine sea-weed, the female deposits, yearly, only one egg. This egg is of a bulk very much disproportioned to the size of the bird.

The species *Fratercula Arctica*, which is the *Puffin Auk* of Latham, is periodically a bird of passage on our coasts, and on those of Holland and France, where it arrives in March, or April. A great number of them perish in their passage, and their dead bodies are driven on shore by the wind. These birds are not frightened by the presence of man, nor even do they shew much fear of shot. Their cry is a grave sound, and their flight is sometimes considerably elevated, notwithstanding the smallness of their wings. They couple on the water, like the ducks, and towards the middle of May, the females lay, in burrows, already made, or in holes which the lightness of the soil enables them to excavate to several feet in depth, a single white egg, as large as that of a young hen, pointed at the end, and with ash-coloured and not very distinct spots. We are informed by a French writer, that when the female perceives any attempt to take away her egg, she pushes it behind her with her feet, to the bottom of the hole, and remains boldly at the entrance to defend it. These birds retire in autumn, with their young.

The yolk of the eggs, according to Fabricius, is good eating, and the flesh of the young is a tolerable meat; but that of the old exceedingly rancid and disagreeable. The natives of the Kurile islands make ornaments with their bills, and those of Oonalaska, vestments, with the skin and feathers.

It is reported by Buch, in his Voyage to Norway and Lapland, that the natives have a singular mode of catching these birds, when they are in considerable numbers. We quote it here, but without pledging ourselves for its authenticity. When, by the assistance of a noose, the fowler has succeeded in getting out the foremost one, as each bird seizes the tail of

that which precedes, they are all drawn with ease out of the hole which they occupy.

The *Tufted Auk* of Latham, *fratercula cirrhata*, belongs to this subdivision. These birds never quit the sea during the day-time, but do not remove more than five or six leagues from rocks and islands. They live on crustacea and testacea, which they break with their bill, as with a wedge. The male and female retire, during the night, into the crevices of precipitous rocks, and into holes which they dig themselves, to the depth of an ell, and they dangerously wound the imprudent hand that attempts to withdraw them. The female lays one egg, of a middle size between that of the duck and goose. Notwithstanding the considerable relations existing between this and the last species, they do not live together, nor do they even inhabit the same countries. While the puffin auk is found in all the Northern Ocean, in Iceland, in Norway, in America, in Scotland, and even in the Oriental seas, the tufted auk appears confined to Kamtschatka, America, and the Kurile islands.

Those fraterculæ, distinguished by M. Temminck under the name STARYKES, a word of Russian origin (PHALERIS), differ little in their habits from the preceding species. The *Perroquet Auk*, Lath., (*fratercula* or *alca psittacula,*) inhabits Kamstchatka, the islands towards Japan, and the west shores of America. These birds are so stupid, that the natives catch them in the evening, on their return to shore, by merely waiting for them, enveloped in loose garments of fur, with open sleeves, into which these auks run for shelter. This kind of capture is, however, of small value, for their flesh is blackish and very hard, and the down cannot be removed without tearing away the skin. The same birds will also suffer themselves, at times, to be taken by the hand, when they drop on shipboard, which sailors consider a presage of bad weather. Like the species before-mentioned, they lay but one egg.

The *Cristatella* of the same author is remarkable for an elegant curling tuft of feathers on the forehead, with other slender arched feathers behind and beneath the eye.

The PINGUINS proper are placed in Latham's genus *Auk*. Our author, as we have seen, denies them the faculty of flight *in toto*. But in this he is contradicted by M. Temminck, who says that it applies only to the *Alca Impennis* (*Great Auk*, Lath.) and the *Alca Torda* (*Razor-billed Auk*, Lath.) flies very well, though closely shaving the surface of the water. The pinguins have close relations with the following genus *Aptenodytes*, or the manchots, which are called pinguins, by Latham; but, independently of other differences, the pinguins inhabit the northern, and the manchots the southern seas.

These birds rarely quit the coasts, and unless from accidental causes, such as squalls and hurricanes, do not appear on shore except in brooding time. They have a double moulting, and there is no marked difference between the sexes. They nestle by troops in the holes of rocks, and lay but a single egg.

The *Common Pinguin* of our author, *Razor-billed Auk*, Lath., is an inhabitant of the Arctic Seas of both worlds, and in winter is a bird of passage on the coasts of England, Norway, Holland, and France, and is accidentally seen on some inland waters. Insects, and marine crustacea, appear to form its principal aliment, as well as certain fish, especially young herrings. The single egg, which the female lays in the holes of rocks which border the sea, is oblong, of a yellowish white, sometimes marked with small ash-coloured spots, and sometimes with black and brown spots of an irregular form.

Edwards conjectures that these birds pass the winter in caverns of rocks, whose aperture is submerged, but whose interior is sufficiently large to afford them a retreat, where they remain in a state of torpor, supported by the fat with which they are loaded.

The *Alca Impennis*, or *Great Auk*, very seldom removes from the highest latitudes, and lives habitually on the floating icebergs of the Arctic Pole. It always remains upon the water, except during the time of propagation, when it places in the clefts of rocks, a nest, in which the female deposits an egg, as big as a swan's, of an isabella-white, with many black stripes and spots, resembling Chinese characters. It would seem that the food of this species is partly marine vegetables, and partly fish of certain species.

The division APTENODYTES, *Manchots* in French, comes under the title *Pinguin* in Latham. Our navigators to the Austral Seas have always designated the birds which constitute it, by the same name, but certainly most erroneously, for there are not only strong differences of generic character between the pinguins and manchots, but they inhabit exactly the opposite latitudes of the globe.

These birds are of all the feathered race the most totally unprovided with the characteristic faculty of their class. Instead of wings furnished with quills, they have nothing but simple pendant winglets, covered only with the rudiments of feathers resembling scales. In the water these perform the office of oars or fins, and out of that element, can assist merely in preserving the equilibrium of the bird in its vacillating walk.

These birds are found only in the Antarctic Seas and Islands, while nature appears to have assigned to the pinguins the northern seas as their peculiar sojourn. Their neck is short and thick, their skin hard and thick, like that of a pig, and their belly covered with a great quantity of fat. On land, from the position of their feet, they hold themselves upright, as if sitting on the crupper. Assembled in flocks, they seem, at a distance, like so many children, and inclining their heads to one side and the other. They are easily approached, and knocked down with stones and sticks. We should not, how-

ever, attribute to stupidity what is only a natural consequence of their conformation, which will not permit them to withdraw with sufficient rapidity from dangers, of the nature of which, moreover, they can know but little in their desert habitations. If surprised, they defend themselves by striking violently with their bills against the legs of their assailants. They sometimes even have recourse to stratagem, and pretending to run away, return quickly, and strike with so much force as to tear away the skin, when the legs of those who attack them are not well guarded. They appear, however, but seldom on land, except in the breeding time, which takes place in the small islands bordering the coast. They hold themselves upright upon their nest, where the females in general lay but two or three eggs.

The *Aptenodytes Patagonica, Patagonian Pinguin* of Latham, when its voice, which resembles the braying of an ass, is heard, elongates its neck, which, says Bougainville, gives it something of a noble air. They are usually seen in flocks, sometimes to the number of forty. But though apparently arranged in order of battle, when attacked, they make for the water-side, when they have sufficient time; and as soon as they find water enough to cover their head and shoulders, they plunge down, and swim with so much quickness, that no fish, it is said, can follow them. When they meet with any obstacle, they spring four or five feet out of the water, and then plunge in again, to continue their route. Bougainville thought of transporting into Europe an individual of this species, which had been so far tamed as to know and follow the person who fed it. It would eat bread and meat, as well as fish; but these aliments, without doubt, were insufficient, and it became emaciated, and died.

The *Aptenodytes Chrysocoma* belongs to our author's subgenus CATTARACTES. It has been found by travellers in the Magellanic lands, in that of Van Diemen, in the island of

Desolation, and at the Cape of Good Hope. This bird, instead of walking, transports itself from place to place, by leaps and bounds. This circumstance probably induced Bougainville to attribute more vivacity to it than to the other species. These birds live in families, on lofty rocks, and make their nests there. They lay but one egg. This is the *Crested Pinguin* of Latham.

Aptenodytes Demersa, Cape Pinguin of Latham, is the type of our author's spheniscus.

These birds, whose digestive tube is very long, take so much food at a time, that they are frequently forced to disgorge it. When they swim, their head alone is visible above the water, and they catch fish with the most astonishing facility. They remain six months at sea, but during summer and autumn, they pass the greatest part of the day in the weeds about the coast. With their bills they form holes of two or three feet in depth, the entrance to which is very low, and tolerably broad. There they live, and the females lay two or three eggs, of a dirty yellow, about the size of turkey-eggs. Early in the morning, and in the evening, they sally forth to fish, and on their return, form in flocks along the shore, where they send forth cries like the braying of an ass, and nearly as loud. When walking in the paths which they form through the weeds on the coast, they make a noise like the trot of a little horse. They can be killed with short sticks, but care must be taken to avoid the strokes of their bill, which will often draw blood. They are found at the Cape, Penguin Isle, the Malouines, &c.

We come now to the family of the LONGIPENNES, or high-flying Palmipedes.

The PETRELS have received this denomination, whimsically enough. Besides the faculty of swimming, they possess that of supporting themselves on the water, by striking

very rapidly with their feet, which has caused them to be compared to *St. Peter* walking upon the water.

The petrels are to be seen in all seas of the globe from one pole to the other. They are the inseparable companions of mariners, during their long navigations. Those which are most frequently met, are the *Procellaria Capensis*, and the smallest species. The flight of these birds is almost always performed by hovering, and without presenting apparent vibrations. They rise with facility, and can fly against the strongest winds, which never slacken their movements. The tempest not only does not affright them, but they are almost necessitated to seek those seas where the agitation of the waves bring to the surface those marine animals which constitute their food. In consequence of this, they are frequently seen in all weathers, in the vortices which are formed by the track of vessels.

These birds drop upon their prey with extreme promptitude, and carry it off with their bill, as with a harpoon; but they have not the habit of diving, to attain it. They are, in fact, never seen to submerge, and when the animal they are watching is somewhat below the surface, they sink a portion of their body in the water to seize it.

That fish constitute the principal aliment of the petrels, seems to be an error. Neither their habits, nor the structure of their bill, appear adapted for fishing. It seems more natural to regard dead cetacea as their preferable food, and mollusca, marine worms, and the spawn of fish, as furnishing, particularly to the smaller species, an habitual nutriment.

The petrels, finding the sea to be always a suitable element to them, do not quit it, except at the time of laying, and for the purpose of making their nests upon very precipitous rocks, where they feed their young on half digested animals. They retire there during the night, and utter a most disagreeable

cry, resembling the croaking of a reptile. When it is attempted to surprise them on their eggs, they dart into the eyes of the hunter, an oil, of which their stomach is full. Observers, not aware of this fact, have frequently lost their lives by it, falling into the sea, or down precipices.

Though the petrels have very long wings, their flight is not remarkably lofty. It is on the high seas that they are most usually to be met; but it sometimes happens that individuals, driven perhaps by some gust of wind, or having lost their way, appear upon fresh waters.

It appears from the observations made by MM. Quoy and Gaimard, during the voyage of Captain Freycinet, that the mere presence of the petrels is no certain sign of the proximity of land. The same gentlemen remark, that there is some difficulty in shooting them, as they do not, in general, surround vessels, except when the winds are high, and the sea is agitated, and that they cannot be sought out without compromising the lives of those who would hazard the attempt: a complete description, therefore, of the numerous species of which this genus is composed, is scarcely to be expected.

Of the *Giant Petrels*, Captain Orne, of the American service, says, that in spring they come in great flocks to the Malouine Islands, where they lay such quantities of eggs, on the strand, that canoes may be loaded with them. Another American captain tells us, that they observe much order in the general arrangement of their eggs; and, living at this time in a sort of republic, they exercise, by turns, a sort of surveillance over the species of temporary establishment which they form. This extraordinary fact, however, is not noticed by Captain Orne.

The small species which M. Cuvier places after his first subdivision of the petrels (see text), are said by M. Temminck to be semi-nocturnal; that by day they habitually conceal themselves in the holes of rocks, and hunt only by twi-

light. These facts could only have been observed on such individuals as sojourn on the European coasts; but they agree very little with the accounts of navigators, who have seen them, at all hours of the day, on remote seas. The flight of these birds is so rapid, that the eye follows them with difficulty. When the sky is overcast, they approach vessels, and in tempests, take refuge on the poop. It is a common prejudice of sailors, that their presence, at any time, denotes a coming storm; but this is denied by MM. Quoy and Gaimard. Still, it must be observed, that the extent of their wings, so favourable for flight in serene weather, is much against them when the wind is violent, of which they then become the sport, and often the victims. It is natural enough, therefore, when they perceive the first approaches of the tempest, that they should endeavour to anticipate it, and seek for refuge. When they cannot have recourse, in such cases, to vessels, they will shelter themselves in the deep hollows between two swelling waves, and remain there some instants, notwithstanding the rapid rolling of the sea. They run in those moveable furrows of the ocean, as larks do in those of the fields, and, balanced on their wings, they skim the surface of the water, striking it rapidly with their feet. One species, the *Stormy Petrel*, is familiar to sailors, under the name of Mother Cary's Chicken.

We must pass over the divisions PUFFINUS, HALODROMA, and PACHYPTILA, whose habits and manners are the same as we have just described, and proceed at once to the ALBATROSSES.

These birds, whose habitual dwelling is the Austral Ocean, are the heaviest of all the tribe of the palmipedes. In spite, however, of their strength and their trenchant bill, they are by no means warlike. They even remain on the defensive against some of the gull tribe, which harass them, and attempt to attack them under the belly. To get rid of these adver-

saries, they plunge their body into the water. Though small, marine animals, mucilaginous zoophytes, and fish spawn constitute their principal food, they will also swallow very large fishes. They are indeed so voracious, that they may be caught with a line and a hook, baited in the rudest manner with a piece of sheep's skin. They experience some difficulty in rising to their flight, and then strike the water rapidly with their feet, and clap with their wings; but after this impulsion, the wings remain developed, and they do nothing but balance themselves alternately from right to left, shaving the surface of the water with rapidity, and plunging in their heads now and then in search of their food to a certain depth. Their flight is never elevated, except in foul weather; and when they are borne along by the wind, they proceed to very great distances from the land, and repose and sleep upon the water. Their cry has some analogy with the braying of an ass.

These birds inhabit the Austral Seas, from the Cape of Good Hope as far as New Holland; many of them are found between the islands of ice in those seas, from the 50th degree of latitude, as far as the solid ice by which they are bounded, under the 65th or 66th degree. They also appear in large flocks, towards the end of June, on the coasts of Kamtschatka, where they precede the bands of migratory fishes. The sea of Ochtok and Behring's Island are the climates where they are most abundant. They are very lean on their first arrival there; but the nutriment which they find in abundance at the mouths of rivers, soon causes them to recover their flesh, during the six weeks which they pass there. They devour fish with so much gluttony, that often one half of the body remains outside of their bill, until the part which is swallowed being dissolved by digestion, leaves a passage for the rest. They are often gorged to that degree as to be unable to fly, or to escape the boats which pursue

them; and their resource is then to throw up, with great effort, the aliments with which their stomach is surcharged.

Towards the end of September the albatross constructs its nest of clay on the ground on the coasts, and its height is about three feet. The female lays there a great number of eggs, more bulky than those of a goose, nearly five inches long, and white with black spots towards the thick end; those eggs, the yolk of which does not grow hard by boiling, are good eating.

The flesh of the albatross is hard and ill-flavoured. Mariners, however, contrive to render it eatable when they are in want of fresh provisions, by taking off the skin, and suffering the body to soak in salt water for four and twenty hours, then boiling it, and eating it with some piquant sauce. The Kamtschatkadales, who also never eat of this bird except in times of dearth, make several articles of the wing bones.

After these generalities, the species, individually, all of which, except the *wandering* albatross, are sufficiently doubtful, merit no farther notice.

The genus LARUS, of which our author has made three subdivisions, we shall consider here generally under our English name of *Gulls*.

The head of these birds is gross, and their neck is short. In a state of repose they have a melancholy air, their neck sunk back, and their port ignoble. Their plumage being close and thick, they are good swimmers; but they are almost continually on the wing, and can brave the wildest tempest. Buffon terms these clamorous and voracious birds, the vultures of the sea, for they feed upon carcasses of every description, which are either floating on its surface, or cast upon its shores. They swarm upon the borders of the sea, where they seek fish, either fresh or corrupted, flesh in the same states, worms, or mollusca, all of which their stomach is capable of digesting. Spread throughout the entire globe,

they cover with their multitudes the flat shores, rocks, and cliffs, causing them to re-echo with their clamours. There are even some species which frequent the fresh waters, and some are to be met with at sea, at more than a hundred leagues distant from land. D'Azara, who has seen them, in innumerable quantities, near the slaughter houses of Monte Video, Buenos Ayres, and even in the squares, where they pick up the offal of the shambles, &c., and sometimes perch on the roofs, tells us that they proceed considerably to the inland, whither they are attracted by dead animals. He even adds, that in plantations they will place themselves upon fig-trees to eat of the fruit, a fact but little in accordance with their carnivorous appetite. They are also observed to watch each other, and if one of them seizes any morsel, the rest surround and stun him with their cries, until he is forced to let go his prey. D'Azara has not observed that they attack each other; but, according to other naturalists, they fight with the most desperate fury, which is redoubled at the sight of blood, and he who is wounded becomes a victim to the voracity of the rest.

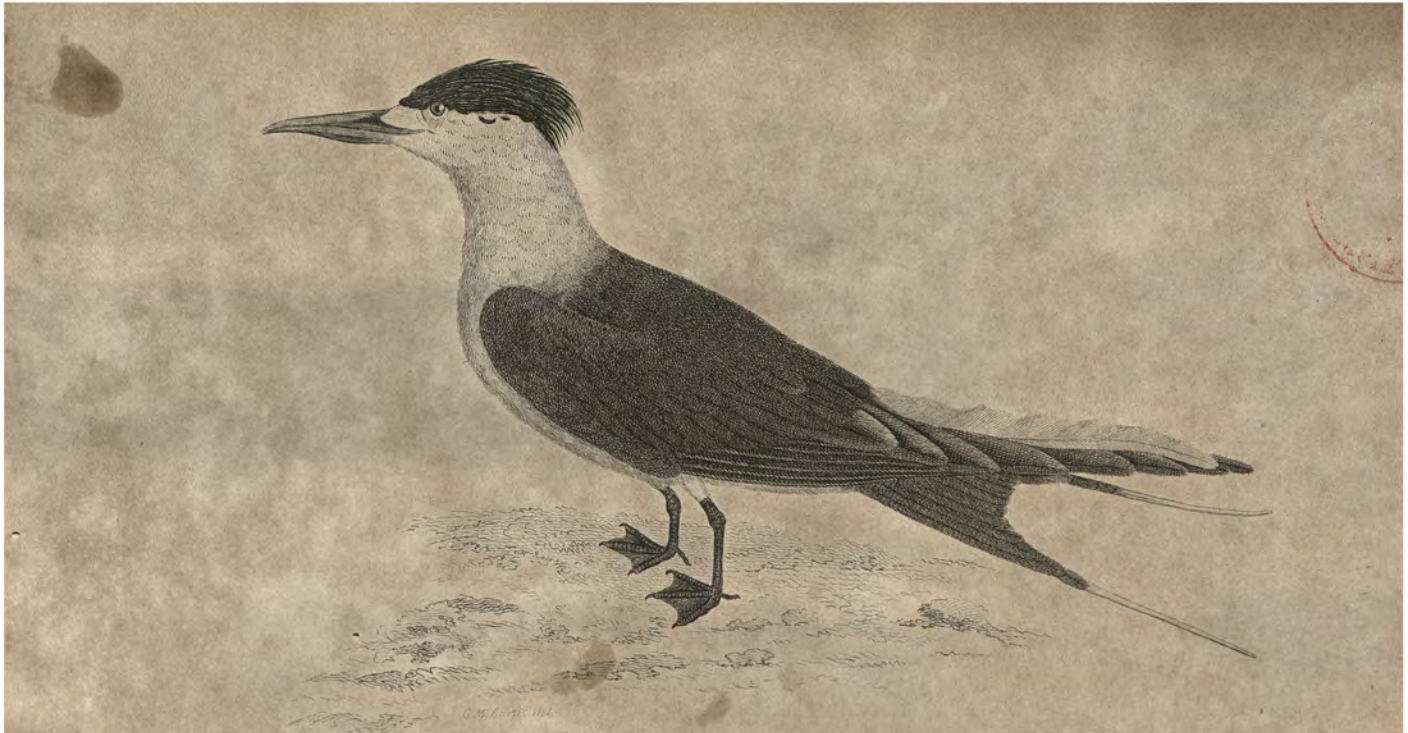
It must be owned, however, that all this appears little likely to take place among cowardly birds, which, moreover, are very badly armed for similar encounters. As the gulls, which are infinitely multiplied, cannot subsist but on food which is presented by chance, or on such prey as they can succeed in taking, they are endued with the faculty of supporting hunger a long time. M. Baillon kept one which lived nine days without taking any nourishment; nevertheless, the want of food, and the fear of failing in getting it, must keep these birds in a perpetual state of agitation. They dart with such violence on their prey, that they will swallow both bait and hook, and spit themselves on the point placed by the fisher under the fish which he presents to them. It is, therefore, very natural that they should pursue individuals

of their own species, in whose possession they see any food, a fact, moreover, of which we are constant eye-witnesses in other species, such as sparrows, hens, &c.; but this is widely different from the attacks and combats of ferocious animals.

It is especially during hurricanes that the gulls are exposed to all the horrors of famine. Mauduyt has made some interesting observations on them at Naples, during a tempest. The gulls which dropped some time on the water, were too light to be submerged, though they were tossed about by the waves. Accordingly, after having seemed to have been swallowed up, they soon reappeared upon the summit of the billows, from which they sprung without difficulty, notwithstanding the length of their wings. From this it seems probable that these, and birds of similar conformation, which migrate to such considerable distances, rest themselves when they have need on the bosom of the sea, from whose surface, however furrowed, they can always rise without difficulty.

Gulls have been found by navigators in all latitudes; they are, however, both more numerous and larger in the northern regions, where the carcasses of large fishes and cetacea present them with more abundant food, and it is on the desert islands of the two polar zones, where they are undisturbed, that they prefer to nestle. They deposit their eggs either in a hole upon the sand, or in the crevices of rocks; but in less deserted countries the smaller species seek the borders of waters, or of the sea, which are covered with plants. The number of their eggs is not always the same,—sometimes two, sometimes four; and it is said that they constitute good eating. The flesh of gulls is hard, coriaceous, and ill-tasted; and the people whom necessity obliges to make use of it, hang up the body by the feet for some time, that the oil may run out.

The birds of the next genus, STERNA, or TERNS, have



BLACK-CRESTED TERN.

S. BERGII. Lich.

London Published by G.B. Whittaker May 1825

Mus. Brit.

BEARDED TERN.

STERNA INCA.

Published by Whittaker & Co. Ave Maria Lane Jan.y 1830.

BLACK-NAPED TERN.

STERNA MELANAUCHER. Tem.S. media. Lin. Trans.

London, Published by Whittaker & Co Ave Maria Lane, June 1829.

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been also called *Sea Swallows*, from the resemblance of their forked tail, long wings, and their constant habit of shaving the surface of the water in all directions, in pursuit of small fish. But the term is exceedingly objectionable, as tending to the inter-confusion of birds of such different orders, and such essential differences of conformation and habits.

The terns are continually on the wing, and, though web-footed, are not seen to swim; they rest but seldom, and only on the land; their food consists, for the most part, in small fish and mollusca, which they seize upon the surface of the water; but they also catch aërial insects. In flying they send forth sharp and piercing cries, especially during nestling time. In calm weather they sometimes rise very high, and are often seen to come plump down. The young differ from the adult and aged, only before the moulting, which is double in the known species, and there is no external difference between the two sexes. The females deposit their eggs, usually two or three in number, in a cavity, and these nests are sometimes so close, that the sitting birds touch each other.

Terns are found in both continents, from the seas, lakes, and rivers of the north, as far as the vast coasts of the Austral Ocean, and in almost all the intermediate climates. In Otaheite they rest upon the bushes, and Forster, in a walk before the rising of the sun, has caught many of them that were sleeping along the pathways. The species are numerous; but to dwell upon them in detail, as to habits, &c., would involve nothing but tiresome repetition.

The Black-naped Tern, *Sterna Melanauchen*, has been lately described by M. Temminck, and is figured in his splendid work on birds.

Our figure of the Bearded Tern is from a specimen in the British Museum, brought from Peru by Captain Lord Byron. And the Black-crested Tern is from a specimen lately in Mr.

Bullock's Museum. The crest, which is very ample, and the legs are black; the rest of the head, neck, breast, and all beneath, are white; the mantle, wings, and tail are slate-coloured, slightly tinted with brown; but the long lateral tail-feathers are white. This bird has been described by M. Lichtenstein, under the name of *Sterna Bergii*.

The RHYNCHOPS (SKIMMER, Lath.) are birds which frequent the coasts of America, from Carolina to Guiana. They live on small fish, which they catch in the shallow parts of the sea. They appear in flocks, and are perpetually on the wing. They nestle on the cliffs.

In the family of TOTIPALMATÆ, the first genus is the celebrated PELICAN. The general facts on which alone we shall dwell here, must be considered as derived from observation on the ordinary species. "This bird," says Buffon, "would be the largest of water-birds, were not the body of the albatross more thick, and the legs of the flamingo so much longer. Its neck-pouch is capable of containing twenty pints, or more, of water, which caused it to be called by the Egyptians *River Camel*, and it swallows into this sac, in a single fishing, as much fish as would serve for the repast of six men." It must appear surprising, that a bird of such vast dimensions (it is sometimes six feet long, from point of bill to end of tail, and twelve feet from wing-tip to wing-tip), should be able to fly with as much facility as it swims; but its entire skeleton does not weigh a pound and a half, and its bones are so slight that they are even transparent. Moreover, a fact, observed by Lory, on the communication of air even into the bones and the tubes of the feathers in birds, has been verified, in a more especial manner, on the pelicans, by Mery, who ha proved the immense quantity of air contained under their sl n, and in the cellular tissue. This evidently contributes to augment the volume of the body without increasing the weight, and to render the action of flight more easy.

The pelican, which occasionally rises to a very great elevation, at other moments only shaves the surface of the sea, or balances itself at a moderate height, from which it may dart upon its prey. By striking the water with its wings, it makes it bubble up, and so astounds the fish as to leave it incapable of flight. When the pelicans are in flocks, they act in concert, and forming a great circle, which they diminish by degrees, they thus enclose the fish. When the concentration seems sufficient, all, at a certain signal, strike the water at the same moment, and by favour of this disorder, all plump in and seize their prey, which they then go to devour at their ease.

After fishing in this manner, when their pouch is full they retire to the points of rocks, where they digest in repose, and remain in a state of drowsiness until night. This pouch, which may be considered as a sort of external crop, has not the digestive heat of that of other birds, and the fish in it therefore remain fresh. To disgorge it to their young, these birds have occasion only to press the pouch on their breast. It is, in all probability, this very simple operation, which has given rise to the tale, that the pelican opens its bosom to feed its young with its own proper substance.

The pouch is composed of two skins, the internal of which is contiguous to the membrane of the œsophagus, and the external is but a prolongation of the skin of the neck. The wrinkles which are formed by the folds of the latter, serve to draw back the pouch when it becomes flaccid. That the bird may not be suffocated when it opens this sac entirely to the water, the windpipe then quits the vertebræ of the neck, comes forward, and attaching itself under this pouch, causes there a very sensible inflation. Two ring-formed muscles, which at the same time close the œsophagus, prevent the water from penetrating there.

The pelican fishes in fresh water as often as in the sea,

and is therefore sometimes found in the interior. But these birds are somewhat rare in European cabinets, and in the old continent; they appertain more to warm than cold climates; they are very common in Africa, on the borders of the Senegal and the Gambia, where the negroes call them *Pokko*, on the coasts of Angola, of Sierra Leone, of Guinea, at Madagascar, Siam, and China, in the Sunda, Philippine, and Manilla islands. They have also been met with in America, from the Antilles, the Isthmus of Panama, and the Bay of Campeachy, as far as Louisiana and Hudson's Bay, also in the southern parts of Australia.

The individuals which are reared in captivity eat rats and other small mammifera, and they snap up and eat apart the pieces which are thrown to them. It might, perhaps, be possible to employ these birds in fishing, as the Chinese do the corvorant; and, in fact, Père Labat informs us that the savages of the Western Islands have succeeded in doing this.

We have already observed, that the bones of the pelican are extremely slight; and doubtless it is to the nature of these solid parts, whose ossification is very tardy, that the bird owes its very protracted existence. It has even been remarked, that in captivity it lives longer than other birds. Turner mentions a tame individual that lived fifty years.

A singularity, which the pelican partakes in common with many palmated birds, is that of perching on trees; but it does not nestle there, but constructs on the ground a nest a foot and a half in diameter, furnished internally with soft plants, in which the female lays two, three, or four white eggs, pretty like those of the swan, and of equal size at both ends.

The flesh of the pelican was forbidden to the Jews as unclean, a prohibition almost unnecessary, from its ill taste and marshy odour. It may, however, be used for its oil, and has been in request in America for that reason. The

pouches of these birds have also been used to hold tobacco; and this skin, when dressed, becomes, it is said, as soft as that of a lamb. Shot pouches, sailors' caps, &c. are also made of it, and the fishermen of the Nile make vessels of it to empty their boats of the water, preserving the bones of the jaw.

It is said that the pelican of Europe is not subject to a double moulting; the young, however, differ much from the old, and do not assume the plumage of the adult for many years. There is scarcely any difference between the sexes.

The CORVORANTS are found in all parts of the globe, and are equally good divers and swimmers. When they swim, they frequently have the head alone out of the water; and in diving, they pursue with the most astonishing swiftness the prey which they have perceived, and which seldom succeeds in escaping them. When they have taken it they return to the surface, and to swallow it the more easily, they throw it into the air, and receive the head, so that the fins may incline in the passage of the gullet, while the membranous skin inclines so as to let pass the entire body of the fish, which is often very large, in proportion to the neck of the bird. In many places, but more especially in China, corvorants have been employed in fishing, a ring being put on the lower part of the neck to prevent them from swallowing the fish, which they are taught to bring back to their master.

They usually inhabit the borders of the sea and the mouths of rivers, and feed on various kinds of fish. When their appetite is sated, they perch on trees, like other birds of similar palmation. They have a double moulting.

The *Common Corvorant* is frequent in England, France, and Holland, but more rare in Germany and the south. According to its localities, it nestles in the clefts of rocks, on trees, or in reeds, and lays three or four eggs, of a pale green. These eggs are as ill-tasted as the flesh, which is very bad. These birds usually inhabit the sea coast; but when they

come near ponds or lakes, they commit terrible devastation among the fish, from their address and voracity.

The FRIGATES fly with uncommon rapidity, and with so much force and permanence that they can proceed more than four hundred leagues from any land, brave the tempests by shooting above their sphere, and remain balanced in the air until they can alight upon some pointed rock or wooded islet, where alone they can rest, for the length of their wings would prevent them from rising either from the waves or the ground. Their sight must also be remarkably piercing, to enable them to discover, at such distances as quite escape our vision, the places where pass the columns of flying-fish, on which they prey. From such distances, however, they dart upon them with the rapidity of an arrow; and when they find themselves close to the surface of the water, they have the power of stopping and changing the direction of their motions so as to shave along and catch these fish with their bills, or with their talons, or both together. Instead of precipitating their head foremost, like birds which have the faculty of diving, the frigate holds its neck and feet in a horizontal direction; striking the upper column of air with its wings, then raising, and fixing them one against the other above its back, it darts on its prey with such address and velocity, that it rarely escapes. Thus the flying-fish, which betakes itself to the air to escape from its pursuers in the water, finds an equal death in the element in which it seeks for safety.

It is only in the inter-tropical seas of both worlds, or a little beyond them, that the frigates are to be found. There they unite to their own captures, those of the birds named boobies, which they force, by striking them with their wings, or pecking them with their bill, to drop their booty, which the others seize as it falls. They have so much confidence in their arms, that they will even brave man himself. Viscount de Querhoënt relates, that one of them approached so near

him, while he held a fish in his hand, that he knocked it down with a blow of a cane; and that some others were flying within a few feet of a cauldron where fish was cooking, though some of the crew were around it. Nevertheless, these daring birds will allow themselves to be knocked down, as easily as the boobies, if surprised in a place where they have not the power of extending their wings.

The frigates place their nest on trees, in solitary places near the sea. The eggs are one or two, white, tinted with flesh-colour, and with small crimson spots.

The birds of the division SULA, in English appropriately termed *Boobies*, are in French called *Foux*, a term by no means expressive of the moral qualities of these indolent beings, which exhibit more of stupidity and imbecility than of madness. However, if these birds shew the most incredible apathy to the most imminent dangers, and if this kind of self-abandonment has caused a doubt whether they even possessed the instinct of self-preservation, may there not be other considerations, by which we may explain, to a certain extent, how they suffer themselves to be killed by blows of sticks, on coasts and islands where they seldom can have occasion to behold man, or suspect him to be their most dangerous enemy, and how they suffer themselves to be taken on the sail-yards of vessels, which they encounter at sea? In the first case, sufficient attention is not, perhaps, paid to the difficulty they find in rising to flight, in consequence of the length of their wings and the shortness of their legs; and, in the second, to the very natural ignorance of the danger which they incur, on those vessels, the meeting with which is but transitory and casual. As to the circumstance, which we alluded to in our account of the frigate, relative to the facility with which they render up their prey to the latter birds, for which they seem to be intended as the purveyors, this is no more than what happens to many other species, and even in the family of the raptores, as we have formerly had occasion to observe. More-

over, when the frigate, a witness of the capture which they have made of fishes swimming on the surface of the water, rushes upon them with more rapid flight, and attacks them with redoubled blows of its powerful wings and vigorous beak, their cries sufficiently testify the pain and reluctance with which they are forced to yield up their booty to this superior robber. Besides, many mariners speak of the long resistance which often precedes the inevitable issue of such an unequal combat. Catesby, indeed, informs us, that when the frigate precipitates itself upon the booby, the latter plunges under water to escape it, and that on its rising again the other renews the attack, until its victim is exhausted; but little credit, however, can be attached to this story, when it is remembered that the bird of which we write swims but seldom, and has neither the habit, nor, in all probability, the faculty of diving.

These birds have been met with in every sea, and in every quarter of the globe. They fly with the neck extended, the tail spread out, and the wings almost motionless. Their cry participates of those of the goose and raven. When they perceive fishes on the surface of the water, they dart from above, to seize them. They remove much less from land than the frigates; and it is generally thought that they retire to desert isles, and rocks covered with a little earth, to pass the night. Nevertheless, according to the testimony of many navigators, no positive conclusion concerning the proximity of land can be drawn from their presence. M. Vieillot, in his voyages to America, having observed, that the boobies, at the rising of the sun, were pretty nearly in the same latitudes as at the close of day, concludes that they could not possibly have rested on land, and returned in the interval from one twilight to another, and is of opinion that they remain on the sea during the night, at which time he has often heard their cries.

In many countries these birds perch on trees, and, accord-

ing to Dampier, they nestle on them in the Isle of Aves. But they more usually breed on solitary islands, on rocks, and on cliffs which border the sea. They lay but one or two eggs, equally pointed at both ends, and whose surface is rough and white. Though they prefer, for nestling, the islands situated between the tropics, they are found in the Hebrides, in Scotland, in Norway, and as far as Kamtschatka. But they only remain there during summer; when winter approaches, they return to the south with their young. These remain a very long time covered with a very soft and white down.

M. Temminck tells us that the skin of the neck is not adherent to the muscles, but that it holds merely to the body by a cellular tissue, very loose, that is to say, composed of some fibres, placed at unequal distances, and that it is susceptible of great extension. He adds, that in both sexes, the cartilaginous trachea has its tube towards the glottis, and dilates in the form of a tunnel, as in the corvorant; but that the larynx is furnished on each side with a tympani form membrane.

The ANHINGAS (PLOTUS), DARTER of Latham, are birds which inhabit the most southern and the warmest regions of both continents, where they frequent fresh waters, and inundated savannahs. Though palmipedes, they perch on trees which border the shore, pass the night there, and construct their nest on the most elevated branches. But it is an error to suppose that they dart from thence, to seize on their passage the fishes which constitute their food. This habit, very natural to a bird of prey, which cannot support itself in the water, is not likely to belong to one that is an excellent swimmer and diver, and that has so many other means of discovering fish, of pursuing, and obtaining it when it is on its favourite element. Notwithstanding the sharp form of the bill of the *plotus*, it is not probable that the point serves it for a dart to pierce its prey, which it seizes between the man-

dibles. If the fish which it catches is small, it swallows it entire, without leaving the water. If too large, it carries it on a rock, or the trunk of a tree, and divides it with its bill and feet.

When the anhingas fly, the neck, stretched out, forms a horizontal line with the tail; but when they are at rest, its perpetual oscillation considerably augments its resemblance to a snake. Being extremely wild, these birds are but seldom seen on land; and when they swim, their head is almost the only part which is out of the water, into which they plunge altogether on the slightest appearance of danger, and do not reappear, but at considerable distances. Even then, they only show themselves for the time which is necessary for respiration. Such is their cunning, that having dived at the distance of an hundred paces beyond the pursuer, they emerge to respire the air at more than a thousand paces behind him, until finding some reeds, they conceal themselves there, and appear no more. Their skin is very thick, and the flesh oily and ill-flavoured.

The *Plotus Anhinga*, according to Bartram, live in small societies, and assemble on the dry branches which hang over rivers. When surprised, they drop into the water, as if dead, and after one or two minutes, they reappear, at a great distance, showing nothing but the neck, and sometimes the end of the tail. During the heat of the day, they fly, in great numbers, to a considerable elevation in the air, over lakes and rivers.

The PHAETON, or TROPIC BIRDS, received from Linnæus the former appellation, because, from their habitual residence under the burning zone, bounded by the tropics, they seem attached to the chariot of the sun. From this climate they remove but little, and are rarely seen beyond the 21st parallel of south latitude. Their appearance, accordingly, indicates to mariners their approaching passage under this zone, from whatever side they may arrive. Still they advance sea-ward,

LEVAILLANT'S DARTER.

PLOTUS LEVAILLANTII.

Mus. Gen. Hardwick.

London, Published by Whittaker & Cº Ave Maria Lane, Oct. 1829.

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C. Hamilton Smith. Esq. del.

THE TROPIC BIRD, var.

PHÆTON ÆTHEREUS, var.

London. Published by G.B. Whittaker. March. 1829.

many hundreds of leagues. These birds have a mode of flying which is peculiar to themselves. They appear, from a sort of trembling, to be extenuated with fatigue, and on the point of falling. They drop down from a considerable height, abandoning themselves to their weight, and seize the fish without diving. But when they pursue the flying-fish, which constitute their principal aliment, they shave the surface of the water. When they perceive a vessel, they come to reconnoitre it, hovering above its head. It has been reported, that if a red flag be placed upon the mast, the phaetons will approach and peck at it; but the mariners of the Uranie, under Captain Freycinet, tried this experiment to no purpose. Nevertheless, at the Island of Bourbon, these birds were attracted on the strand, merely by waving a handkerchief of this colour.

The tropic-birds, like the corvorants, perch on the highest trees; and it is supposed that when they are at a very considerable distance from all land, they are enabled, by means of their completely palmated feet, to repose upon the sea. They make their nests in the holes of precipitous rocks, or in the hollows of trees. The young, yet in the nest, gathered up in a ball, and covered with a down of the most brilliant white, have a resemblance to powder puffs.

Of the long tail feathers, (sometimes twenty-four inches,) the Otaheitans make plumes for their warriors; and the Caribs used to pass them through the cartilage of the nose, to render themselves more handsome, or more terrible.

Of the family of LAMELLIROSTRES, the first is the well-known genus ANAS, which we shall consider in its subdivisions.

The SWANS, whose domain is the waters, and of which they constitute the finest ornament, live on rivers, ponds, and lakes. Grains, roots, and the different parts of aquatic plants, constitute their principal nourishment. Accordingly, the cœcum,

and even the other intestines, are very long. The indentations of their bill, in all probability, serve to cut these substances, and at the same time to cause an ejection of the water taken in with them. They also eat frogs, leeches, and, many naturalists add, fishes; but this point is contested by others.

These birds are monogamous. They nestle on the ground, at the edges of waters, and the young quit the nest, swim, and eat immediately when they are born. The swans, which swim with such facility that a man walking rapidly on the shore can scarcely follow them, also fly with much force and lightness, and can undertake long voyages. The motion of their wings produces a sonorous and harmonious sound, which is heard at a considerable distance, and to which Sonnini is inclined to attribute the ancient fable respecting their song. Their social character induces them to live in the company of their fellows, and, both on the water and in the air, they are always seen in flocks.

The palmipedes, in general, are accustomed to polish their feathers, to render them impermeable to water; but the swans make a most assiduous toilet, from which nothing is capable of turning their attention, except the maternal cares of the female, when she is hatching. It has been asserted, that the mode in which the swans comport themselves on the water, is indicative of the changes of temperature; that when they plunge one half of their body in the water, it is a sign of fine weather, and a contrary sign when they make the water splash around them and fall like a little mist.

The life of the swan appears to extend beyond a century. This longevity seems a natural sequel to the length of the incubation, and the time which elapses before they acquire their full development. Their flesh is black and hard, and the ancients doubtless made use of it in their feasts, only for the purposes of ostentation. Their down, of such exquisite

fineness, has been employed for a variety of purposes, too well known to need any thing but a mere allusion.

The common swan, *Cygnus Olor*, *Mute Swan*, Lath., in its wild state, according to M. Temminck, inhabits the great inland seas or lakes, especially towards the eastern parts of Europe; but it has become domestic in the great majority of countries. It was, formerly, according to the testimony of M. Dumont, more plentiful in France than it is at present. It is abundant enough in Holland, and in Prussia. It is unnecessary to observe the frequency of these birds in our own country, where they embellish the estate of almost every nobleman and gentleman. Protected on the Thames, as royal property, they form one of the finest ornaments of that noble river.

The general and voluntary domestication of the swans, is owing, doubtless, to the regard in which they are held, and the general avoidance of all attempts to restrain them in captivity. The few that are shut up in yards, &c., are melancholy, and make continual efforts to escape from their imprisonment; and escape they will, at such times as they happen to hear any wild swans, unless care be taken to clip their wings at every moulting. The strength of the swan is equal to its grace, and among the fiercest of the feathered tribes, it has no enemy but the eagle. Even this king of birds it can frequently repel with reiterated strokes of its vigorous wing, and it often comes off victorious from a combat which it did not provoke, but from which it disdains to fly. It is even said that the stroke of its wing is violent enough to break the leg of a man.

It may seem singular that these birds, whose usual habits are those of peace, should sometimes employ their courage against their own species. But with the swan, as with most other animals, not forgetting the rational lord of the creation, the fiercest passions originate from the most delightful. The

rival males, in this species, fight with the utmost desperation, and each tries to suffocate the other, by holding his head under water. These duels, which sometimes last entire days, frequently terminate by the death of one of the champions.

The swans, which form their nests on the least frequented banks of lakes and rivers, lay from seven to eight eggs, of an oblong form, and a clear greenish grey. The incubation lasts about six weeks. The mother sits upon the eggs, and when she quits them to attend to the calls of nature, she covers them with feathers, and with rushes. During all this time the male remains constantly near the female, and is continually ready to defend her against every assailant. In these circumstances he even becomes dangerous; and, according to Lewin, has been known to throw down young persons of fifteen or sixteen years of age. The male and female continue for some time their protection to their offspring, and when the latter swim, the female appears at the head, and the male brings up the rear.

The *Whistling Swan*, Lath., *(Anas Cygnus,)* is a wild species. These wild swans inhabit the northern regions of the two continents, nestle there, and never quit them until forced by the rigour of the cold. They then pass into Scotland, Holland, North of France, &c. They even sometimes proceed into the interior, in very cold winters.

The flight of these birds is generally very elevated. Flocks have been observed composed of young and old, the former occupying the centre, with the male at the head, at some distance, and the female closing the rear.

It is to this species that the ancients attributed so melodious a voice; but this opinion, however accredited, was not universal. It was contested by Lucian, Pliny, and Elian; and even Virgil speaks only of the disagreeable cries of the swan. Some moderns have, notwithstanding, adopted the popular notion of the ancients on this subject, and, even in contradiction to the evidence of their senses, have endeavoured

C.Hamilton Smith Esq. del.

SPUR-WINGED OR GAMBIAN GOOSE.

ANAS GAMBENSIS . L .

BLACK-NECK SWAN.

A. NIGRICOLLIS.

Published by Whittaker & Co. Ave Maria Lane. Jan.ʸ 1830.

to persuade themselves of its truth. It is unnecessary to trouble our readers with any details of their arguments and experiments, and quite sufficient to observe, from all creditable evidence, that the opinion is utterly unfounded. Nothing is more easy than to believe what we wish to believe, and, therefore, it was not difficult for a superstitious zealot of antiquity to fancy he had discovered a regular gamut, in the dissonant cries of the wild swan. There is, however, a peculiar conformation of the trachea, in this species, to which the production of such cries must be attributed.

The comparative modern discovery of the Black Swan seems to lead to the conclusion that the *Cygnus Niger* of antiquity was not altogether a fabulous creature. If, however, the ancients had any real knowledge of it, it is clear the species must have changed its habitat, for it is now indigenous in New Holland only.

Our figure of the *Black Necked Swan*, mentioned by Molina, and subsequently by Azara, as proper to South America, is from a specimen in the Museum of New York, drawn by Major Hamilton Smith.

The *Spur-winged Swan*, or *Gambian Goose*, is intermediate in size between the wild swan and common goose. It is, however, most remarkable for the large red protuberance on the base of the bill, and for the two obtuse spurs with which the wing is armed, the dark part of the plumage of this bird are purpled black. It is found in Gambia and Senegal.

As for the GEESE, in general, they live in meadows and marshes, feeding on aquatic plants and grains. They are polygamous, nestle on the ground, and the young, which walk as soon as they are born, feed of their own accord. The geese do not swim much, and never dive. The moulting is double in the majority of species. The natural cry of the

goose is sonorous, and, like that of the crane, has been a frequent source of comparison with the ancient poets.

The flight of wild geese takes place without noise, and the order in which it is performed, presupposes no small degree of combination and intelligence. It is an arrangement the most favourable for each individual to follow in its place and preserve its proper rank, and for the entire flock to cut the air with the smallest degree of fatigue. They place themselves in two oblique lines, forming an angle, or in a single line when the troop is not very numerous. He who is at the head of the angle, cuts the air first, retires to the last rank to repose himself when fatigued, and the others take his place in their turns. There are certain points, so to speak, from which the grand armies of these birds divide, to spread themselves through different countries; such are Mount Taurus relatively to Asia Minor, and Mount Stella, where they repair in the after-season, and from whence they disperse through Europe. These secondary bands unite again, and form others, which, to the number of four or five hundred, come sometimes in winter, and alight upon our fields, where they feed upon the corn and grass, scraping away the snow.

Every evening, after sunset, the wild geese repair to ponds and rivers, where they pass the night, that they may enjoy security. Their habits, in this respect, are very different from those of ducks, which go, during the night, to pasture in the fields, and do not return to the water, but when the geese quit it. This alone would be a sufficient reason to warrant the separation of the genera *Anas* and *Anser*.

It is only during not very severe winters, that the wild geese remain any time in temperate climates; for when the rivers are frozen, they advance more southward, whence they retire towards the end of March, to return to the north, and proceed into the most elevated latitudes, to Spitzbergen,

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WILD GOOSE.

A. ANSER.

London Published by G.B.Whittaker March 1822.

Greenland, to the shores of the Frozen Ocean, and to Hudson's Bay,—where their fat and dung constitute a resource for the hardy inhabitants.

The geese have good sight, very fine hearing, and their vigilance is so great that they are never taken at fault. While they are eating, or sleeping, there is always a sentinel in the troop, who, with his neck stretched out, and head in the air, is ready to give the signal of danger. If we add to these signs of intelligence, and to the remarks already made on the arrangement of their order of flight, the signal proofs of attachment, which domestic geese have exhibited on many occasions, we shall perceive how little foundation there is for the popular opinion respecting their stupidity. This, indeed, appears to have been formed merely on external characters; on their walk, their stretched out neck, gaping mouth, and the sound of their voice, especially when they experience any terror.

As these birds fly remarkably high, and do not alight but when they are over waters, there is considerable difficulty in shooting them; and their extreme distrust renders for the most part all the stratagems employed by fowlers of no avail. Our common application of the proverb, "a wild-goose chase," sufficiently proves this, and ought to do away with the vulgar prejudice respecting their stupidity.

The domestic goose is so well known that it would be superfluous to dwell upon it in detail, more especially as it presents little interest under the head of natural history. We may simply observe, that it lays in the month of March, and that the incubation lasts one month. The flesh, though much in request, cannot be considered as very wholesome or digestible. This bird is very long-lived.

The BERNACLES are separated by M. Cuvier from the geese proper; but there is nothing in their habits worthy of detaining us here.

Of the habits of Cereopsis, a New Holland bird, little is known, except that it can easily be tamed and domesticated. This genus is placed by Latham with the grallæ, and its feet are not webbed to the claws.

The numerous species of the Ducks, which have been subdivided into several sections by our author, people, in all parts of the world, the shores of the sea and of rivers. All swim with ease, and dive in search of their prey. They do not quit their favourite domicile, but when the care of their offspring attaches them to the shore; but as soon as the young are disclosed, they conduct them to their favourite sojourn. In fact, humidity can neither penetrate them, nor cause them to lose any portion of their agility, in consequence of the sebaceous humour with which their feathers are besmeared. Their broad and palmated feet constitute them most peculiarly the inhabitants of the liquid element, and, accordingly, they are never at home elsewhere, and seem even to be afraid to set foot on land. It is true that their feet, habituated to a humid surface, may, perhaps, be wounded by the roughness of the ground. Moreover, the articulation of the femur so far back, renders walking a difficult and awkward operation to them. But on the water, all their motions and functions are executed with facility, and all their evolutions performed with grace.

The element which the ducks inhabit constantly supplies them with subsistence, which they take without fatigue, and often find without pain or trouble. We find that their species are more equally distributed in both continents, than those of many other genera. All, or almost all of them, retire, at the epoch of reproduction, into the most northern climes, because they find there an asylum nearly impenetrable, and necessary for the long infancy of their young. They remain there, for the whole season of the very long days in those latitudes, and do not quit them until autumn, to pass into more southern

C. Hamilton Smith Esq.r del.t

SHORT LEGGED GOOSE.

ANAS CLAUDICANS.

Published by Whittaker & C.o Ave Maria Lane. Jan.y 1839.

countries. But, previously to the vernal equinox, they follow the march of the sun, to return to those icy shores which are their native country.

Of M. Cuvier's first section of the ducks proper, the SCOTERS, (*Macreuses*, Fr.) the *Black Scoter*, *Anas Nigra*, is the type. These birds inhabit both continents, but the most northern parts in preference, from which they descend on our seas. They are winter visitants of our coasts, and more so of those of France, brought by the north and north-west winds. At such times the sea is almost covered with them. They flutter from place to place, just shewing themselves on the water, and disappearing at every instant. They feed on shell-fish, but will also eat corn. They never fly but just above the surface of the waters, where, in fact, they only flutter; but they are indefatigable and agile swimmers.

In this section of Cuvier seem to be included certain species with very short wings, which Lesson has separated, generally under the name Micropterus, and of which *Anas Brachyptera* is the type. We have engraved a figure from Major Smith's collection of a brachypterous goose, from the South Seas, in which, however, the tarsi are as remarkably short as the wings. We have named it, provisionally, the *Short-legged Goose*. It is uniformly very dark ash, or soot colour, undulated with a deeper tint, and is as big as a goose.

The *Garrots* (CLANGULA, Dr. Leach) can claim nothing of our attention here; but we must not pass over the celebrated EIDER.

The eiders have some analogy with the geese; but more with the ducks. They live on fish, or shell-fish, which they either seize at the surface of the water, or dive in search of, and this they do in the most agitated seas. Major Cartwright has estimated the rapidity of the flight of the eider, at nineteen miles an hour.

The eiders fix their habitual dwelling in the coldest coun-

tries, against the rigour of which they are sufficiently protected by the thick covering of their so much celebrated down. Though not so numerous as formerly, these birds are still found in great quantities in Iceland, in Lapland, in Greenland, in Spitzbergen, and Kamtschatka. They even pass into America, and are to be seen in the country of the Esquimaux, in Canada, in the Miquelon Islands, in New England, and even in New York.

The European countries, beside those already mentioned, which they most frequent, are Sweden, Denmark, the Hebrides, and the Orkneys; but they are not to be seen upon the coasts of the ocean.

The eiders feed on fish, shell-fish, insects, and marine plants. They show themselves very greedy after the entrails of fish, which the fishermen cast out of their boats. They keep the sea the entire winter, only returning to land in the evening. Their return to the coast is regarded as a presage of bad weather.

These birds nestle on lands washed by the sea, on capes, rocks, &c. Under the shelter of some stones they place their nest, the basis of which is composed of fucus, and the male and female labour at it together. The latter finally covers the bottom and sides with the down which she plucks from herself, and heaps it up until she forms a thick padding all around, which she turns down upon the eggs when she goes to seek for food. The male does not partake the incubation, but stands sentinel in the neighbourhood of the nest, to warn the female of danger. In case of alarm, she first conceals her head, and does not fly away until the moment in which flight becomes necessary. The eggs, of an olive-green, are five or six in number, and are considered good eating. When these eggs, and the down with which they are covered, are taken away, the female will deplume herself a second time to furnish the nest, and will have a second brood, less

numerous than the first. The nest may even be robbed a second time; and in this case it is the male that strips his stomach, to replace the down which the female can no longer furnish. But in such instances, there are but two or three eggs, which must not be removed, lest the place should be deserted for ever.

There are places in Norway and Iceland where these nests are found by hundreds, and such places come by inheritance to the proprietors, who, to attract the eiders, form little artificial islands by cutting through the tongues of land which project into the sea. From these, during the nestling time, they withdraw all other animals, such as sheep, &c., to leave the field free to the birds that may choose to fix there.

Brunnich, who has published a monograph of the eiders, pretends that the ravens destroy their eggs, and even kill the young, which induces the mother to make them quit the nest the moment they are disclosed; but aquatic birds have no need of any particular excitement to oblige them to do this. The same author adds, that the female, taking the young upon her back, transports them by a gentle flight to the sea, from which they return no more; and that many broods uniting, form, in the months of June and July, flocks of from twenty to thirty. Abandoned by the males, which do not follow them, the females occupy themselves continually in beating the water, to make the sand and mud rise up, and bring with them the insects and small shell-fish with which the young are fed.

The eiders are said to live a very long time, and in their extreme age to become grey. Their flesh is very good eating, and the skins are employed in peltry. Their down, however, is too precious not to be a source of preservation to these birds; and Pontoppidan tells us, in his "Natural History of Norway," that killing them is prohibited; but we

are informed by Olassen and Povelsen, in their voyage to Iceland, that such statutes are no longer in force, and that the number of eiders has sensibly diminished in the districts of Kiosar and Gouldbring, in consequence of shooting them. The toleration of such infractions of law must be very injurious to a most important branch of commerce, especially if, as many persons affirm, the down taken from the dead bird has a certain degree of mucosity which renders it liable to rot. It is also said to be less light than that of which the female strips herself, the elasticity of which is so great, that two or three pounds, which may be reduced to a small pellet by pressing it with the hand, will dilate to such a degree as to fill a large quilt. The down must be collected in dry weather, and care should be taken not to drive the mother too hastily from the nest, lest she may leave her dung upon the feathers. The inhabitants of the northern countries often mix the down of other species with that of the eider; but the fraud is seldom perceived, as both have equally the power of retaining the caloric.

At the head of the subdivision MILLOUINS of the text, FULIGULA, Dr. Leach, is the *Anas Ferina*, *Pochard Duck*, Lath. Their flight is more rapid than that of the wild duck; and when these birds assemble in the air, they form a kind of platoon, and not triangles. Being naturally extremely distrustful, they are approached with much difficulty. As timid on land as they are courageous on water, they will not admit the approach of any other duck, but drive them away with strokes of the bill. When on shore, the least danger makes them fly into the water, where they remain during the night even when it freezes, but by agitating the water, they prevent the ice from gathering around them. This bird walks with difficulty, and is forced to use its wings to preserve its equilibrium on land. Its cry has been com-

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THE POCHARD DUCK,

A. FERINA.

London Published by G.B.Whittaker March 1820

Mus.s Gen.l Hardwick.

THE SHOVELER.

ANAS CLYPEATA.

London, Published by Whittaker & C.o Ave Maria Lane Dec.r 1829.

ROYAL ASIATIC SOCIETY

C.Hamilton Smith Esq. del.

PIED DUCK.

A. LABRADORA.

London Published by G.B.Whittaker March 1828.

pared to the deep hissing of a large serpent; it feeds on worms, crustacea, and small fish; it is equally an inhabitant of the north of Europe and America.

Anas Leucophtalmas, and the *Pied Duck*, which belong to this division, are described at pages 613 and 614.

The SOUCHETS, Cuv., RHYNCAPSIS, Leach, are represented by *Anas Clypeata, Shoveler Duck*, Lath. This duck feeds on small worms, insects, and crustacea, which it seeks in the mud and sand on the edges of waters; it also catches flies, according to Gesner, and constantly refuses every thing farinaceous. This bird is wild and melancholy; it sleeps during the entire day, but puts itself in motion in the evening, and bathes frequently during the night. It is known in the north, in Kamtschatka, and even in America. The opposite figure is from General Hardwicke's drawings, from a specimen found in India. It is a winter visitant in France and England. Its flesh is savoury and delicate.

The TADORNA (*Shieldrakes*) appear here and in France in the spring. They then spread themselves in the neighbourhood of the sea, and are often known to seek a lodging in the holes of rabbits. They seem to be rather particular in their choice, for they will enter a hundred before they find one that suits them. They do not make any nest in these holes. The female lays her first eggs on the naked sand; and when she has laid from ten to fourteen, she envelops them in a very thick white down, of which she despoils herself. The incubation lasts thirty days, during which time the male watches assiduously on a neighbouring down or sand-hill. He never quits it but two or three times a day, to seek food. Morning and evening the female quits the eggs, for the same purpose. Then the male enters into the burrow, more particularly in the morning; and when the female comes back, he returns to his ordinary post. When

one of these birds in spring is thus perceived acting as a videt, there is a certainty of finding the nest. It is only necessary to await the hour in which he goes to the burrow; but if he happen to perceive any one, he flies instantly in an opposite direction, and goes to wait for his female near the sea. On their return, both fly for a considerable time above the warren, and do not descend until all symptoms of danger have vanished. The parents conduct the young to the sea the day after they are disclosed, and generally time it so as to be there when the tide is in. The young have thus the advantage of getting sooner to the water, and after this, they appear no more on land. If they are met when proceeding from the nest to the sea, the parents fly away. The mother then affects to fall at a hundred paces distant; she drags herself on the belly, striking the earth with her wings, and by this stratagem attracts the hunter towards her. As the little ones remain motionless until the return of their conductors, they may be easily taken if discovered.

The wild shieldrakes do not collect in flocks like the ducks; they live in couples either on sea or land, and their union is never dissolved except by the death of the male or female.

The down of the tadorna is as fine as that of the eider. Some of these birds remain here and in France in winter, but the majority depart in autumn. The species is also found in the Orkneys, Iceland, Gothland, Kamtschatka, and even the coast of Van Diemen's Land.

The *Arched Duck*, figured in Dr. Horsfield's elegant work on the animals of Java, is described at p. 623.

The *Hawkesbury Duck*, *Anas Jubata*, is of the size of a wigeon. The head and neck are chocolate brown, and on the nape the feathers are more or less elongated in different individuals; the feathers of the breast are undulated, the

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THE ARCHED DUCK.

ANAS ARCUATA. Horsfield.

Mus. Genl. Hardwick.

London, Published by Whittaker & Co. Ave Maria Lane, August 1828.

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Mus. Brit.

HAWKESBURY DUCK.

ANAS JUBATA.

Published by Whittaker & Co. Ave Maria Lane Jan.y 1830.

ASIATIC SOCIETY

SPANISH DUCK.

ANAS VIDUATA.

Published by Whittaker & Co. Ave Maria Lane Jan.y 1830.

Mus. Brit.

BLUE WINGED TEAL. Fem.

ANAS DISCORS.

Published by Whittaker & Co. Ave Maria Lane, Jan.ʸ 1830.

upper part of the back is brown, and the rest of the bird is nearly black. Inhabits New South Wales, especially Hawkesbury River there.

The *Spanish Duck*, *Anas Viduata*, is described at p. 620.

The figure of *Anas discors*, the *Blue-winged Teal* of Latham and Catesby, is from a specimen in the British Museum. It is described at p. 608.

We shall now speak of the *Common Duck*, confining our observations chiefly to the wild state of that species, as we did with the goose.

It is towards the middle of October that the wild ducks generally begin to make their appearance among us, but only in small bands, which are in a little time followed by others more numerous. They are recognised by their elevated flight, in inclined lines, or regular triangles. They are observed on their arrival to fly incessantly from one pond and river to others. Their movements are made more by night than by day. They feed, voyage, arrive, and depart principally in the evening, and even at night, during which the whizzing of their flight discovers their passage; but the noise of their wings is greatest at the moment of their setting out. As long as the rigour of the season does not deprive them of aquatic insects, of small fish, of frogs, of the grains of seeds, and other marshy plants, which furnish them with abundant food, they remain in rivers and large pieces of stagnant water; but when these are frozen, they retire to the borders of woods to pick up the acorns, or spread themselves in the fields to feed upon the green corn. If the cold continues, and becomes too rigorous, they depart altogether, and transport themselves into more temperate climates, returning only with the thaw about the month of February. It is usually in the evening that they are seen to repass with the winds from the south; but the bands are less numerous, because at this epoch they commence to pair. Each couple

set off separately, remain isolated in the reeds and rushes the greater part of the day, travel by night, never stop except when impeded by contrary winds, and proceed to the northern regions to pass the summer. Some few couples, however, remain with us, and nestle in marshy grounds. The female usually makes choice of a thick tuft of rushes, of the middle of which she forms a nest by cutting and bending the stems. Such nests are, however, sometimes found in the midst of brushwood at some distance from the water, and these birds have even been known to lay in the nests of others. The eggs are from ten to fifteen, and sometimes even eighteen in number, and of a greenish-white. The mother strips her breast to furnish the nest, and to cover the eggs during her absence. She never alights at less than a hundred paces from the nest, and takes a circuitous route to arrive there, with her eyes constantly watching to see if there are any enemies in the neighbourhood. Once fixed, however, on the eggs, even the approach of man will not oblige her to quit them. The male remains at some distance from his companion, ready to assist and defend her. The incubation lasts thirty days; and as soon as the young are disclosed, the mother conducts them to the water; it is even said, that if they are at some distance from it, the parents bring them there one by one with their bills. The female rallies them in the evening, conceals them in reeds, and covers them with her wings during the night. The small insects, &c. which they can catch on the surface of the water are their first food. They are for some time covered with a yellowish down, and are unable to fly until they are three months old.

These birds are exceedingly distrustful, make many circumvolutions before they alight anywhere, swim always at a distance from the shore; and when they sleep upon the water, which they often do, one of them always watches as a

sentinel. In consequence of this, the pursuit of them is extremely difficult.

The wild ducks in general prefer the northern regions; but birds of such powerful flight can easily be supposed to pass from one continent to another. We find, in fact, this same species in corresponding climates in the New World; but the American species seems larger and more robust, though in all other respects exactly similar.

The ducks of the last subdivision in the "Règne Animal," SARCELLES, which we may translate TEALS, differ in nothing from the preceding but by being of a smaller size. Their conformation, plumage, and mode of life are similar. As game they are much esteemed, though their flesh is dry, and difficult of digestion. They were domesticated by the Romans, and probably might be so by us, if proper attention were paid to their disposition, habits, and constitution.

The last genus of the palmipedes is the MERGUS (MERGANSER). The birds belonging to it live on lakes, ponds, and rivers. They destroy a vast abundance of fish, and, for their destructive powers in this way, have been compared to the otters. It is for the purpose of retaining the slippery fish that their mandibles and tongue are furnished with dentilations and papillæ, which facilitate the entrance of food into the gullet. So great is the bulk of the fish which they sometimes swallow, that they cannot be introduced completely into the stomach, the body descending there only when the head is digested. The gizzard of these birds is less muscular than that of the ducks; their intestines and cœca are shorter; the swelling part of the lower larynx in males is enormous, and partly membranous.

These birds, in swimming, hold the head alone out of the water. They also dive to a great depth in search of prawns; and as the air which they have the faculty of accumulating in the trachea permits them to remain some time

under water, without coming to the surface to respire, they do not reappear but at very considerable distances. Their flight is long and rapid, notwithstanding the shortness of their wings; but the situation of their feet renders their walk vacillating. Their habitual dwelling is in the Arctic regions of the two worlds, and there it is that they most usually reproduce. They are seen only in winter in temperate climates, where their arrival in great numbers is regarded as the prognostic of a severe season. This opinion is doubtless well founded, as they are driven from the north by the density of the ice, which prevents them from obtaining their habitual aliment on the lakes and rivers of those climates.

In spring they return northwards. There is no certain information respecting the places in which they nestle. It would appear that it is in the rushes which border lakes and rivers, between rolled pebbles, in bushes, or even in hollow trees, that the female deposits her eggs, from twelve to fourteen in number. The males, at least in the great species *Mergus Merganser* (*Goosander*, Lath.), separate from the females after the birth of the young, with which the latter form flocks apart. This circumstance has probably given rise to the suspicion of naturalists, that these birds were polygamous.

The mergansers have but one moulting annually; but according to M. Temminck, that of the old males takes place in spring, while the females and the young males moult in autumn.

On the species separately, there is nothing to add to the generalities now given.

We are unwilling to close the ornithological portion of the 'Animal Kingdom,' without an observation or two on the nature of the undertaking now submitted to the public, with reference more especially to the attempt herein made to allocate all the described species of birds according to the system of Cuvier.

It is notorious to every practical zoologist, that such an attempt must partake in no small degree of imperfection, and this, in all probability, is the reason why the Baron himself has declined making it. The object to be attained may appear, at first sight, sufficiently definite and tangible, and to require little else than industry in its execution; but a slight experience will soon convince the essayist that nature and art combine to render the perfect execution of such a task impossible.

This position applies, indeed, to all the classes of animals, but with a force proportioned to the number of divisions and subdivisions of the species in each.

If it were possible personally to examine every species quoted, one point of vast importance in referring each to its proper situation would indeed be gained; but even then the partial deviations from the generic and subgeric characters, the transition species, as they are called, differing more or less from the typical, would, in many instances, involve the systematist in great doubt and difficulty.

But as personal inspection of all the species is impossible, another and a greater difficulty arises from the study of many of them, through the medium of books alone. The endless synonyma which accident, ignorance, and too frequently pedantic egotism have created, present an artificial barrier against a complete arrangement, even if the natural difficulties of the task could be overcome. Still we trust the attempt,

which is new, in our language, at least, may be useful, and therefore meritorious.

The gentleman to whom this part of the work has been more particularly committed, possesses opportunities of practical information within the reach of very few; and his fellow labourers in the other portions of the work, may perhaps be permitted to say that his zeal and industry in the investigation of species, are at least equal to the advantages of his situation.

We are indebted to several scientific gentlemen, to whom we beg to return our best acknowledgements for several valuable communications made during the publication on the birds. Our friend, William Swainson, Esq, more especially has favoured us with a series of important observations on many of the groups and species of that ill-defined order, the PASSERES; and as we have his permission to print these observations, we cannot perhaps terminate this portion of the 'Animal Kingdom,' more usefully to the public, or more beneficially to the scientific student, than by doing so.

Mr. Swainson in his letter, enclosing the following remarks, states, "No one can be more sensible than myself how utterly "impossible it is to be correct in attempting the hopeless task "of reconciling synonyms, or of reducing ornithological "nomenclature from its present confused state to something "like a comprehensible science. Aware that nothing but a "personal examination, in most instances, of the birds themselves, will effectually conduce to remove error, it is only "from such sources of information that I have ventured to "offer the observations herewith. I have likewise thought it "adviseable to explain more clearly the nature of some of my "own groups, upon which some degree of misconception "appears to have arisen."

OBSERVATIONS

ON SEVERAL OF THE GENERA AND SPECIES OF

THE ORDER PASSERES OF CUVIER,

By WILLIAM SWAINSON, Esq., F.R.S., F.L.S.,

SOC. HIST. NOV. EBOR., SOCIUS HON. SOC. HIST. NAT. PARIS ET ACAD. SC. PHIL. CORRESP., &c. &c. &c.

ORDER PASSERES.

VOL. VI. p. 264.—*Lanius Meridionalis.* The true distinction between this and all the other European species, has not, we believe, ever been stated. It consists in the formation of the wings; the first quillis completely spurious, being hardly an inch long; the second and fourth are equal, and the third longest.

265. The *Brubru,* or *Cape Shrike,* has long since been considered as indicating an aberrant group, (named *Nilaus* in 1826) leading immediately to the sub-family, Thamnophilinæ, Sw.

268. *Lanius Scapularis,* is considered by M. Cuvier as a Vanga.

269. *Lanius Karu,* Lesson, is a Ceblepyris.

269. *Black-headed Shrike,* appertains to the genus Brachypus, Sw.

269. *Northern Shrike.* It is probable that these synonyms belong to different birds.

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270. *Louisiana Shrike.* The same observation.

271. The group of *Malaconotus* was first proposed by us in the Zoological Journal, and its distinguishing characters intimated. Mr. Burchell subsequently adopted the genus, by describing one species. The type is probably the Blanchot Shrike, p. 266, with which the following species may be associated:—
Senegal Shrike, p. 267. Silent Shrike, p. 268. Barbary Shrike, p. 270. Ceylon Thrush, 271. Lanius Erythropterus, p. 271. Lanius Cuba and Boubo, are rightly supposed to belong to this group.

272. *Thamnophilinæ.* Ornithologists, who attempt the elucidation of all the species here enumerated, from the descriptions of Lichtenstein, Azara, Vieillot, and Spix, will, I am fearful, discover the utter impossibility of achieving the task. In the first place, it unfortunately happens, that these descriptions were drawn up some years ago, before it was known that such groups as Formicivora, Drymophila, and Urotamus had been confounded with Thamnophilus, although the former belong to the thrushes, and the latter to the Shrikes. Now as these respective groups are only indicated, in the dead birds, by the different construction of their tarsi, and as these members have been passed over without any particular notice in the descriptions before us, it becomes utterly impossible to say which are Shrikes, or which Thrushes. But this is not all. There is such a beautiful analogy between the two groups, that each of the sub-families of Thamnophilinæ, and Myotherinæ, (under which these birds are respectively arranged) may be almost said mutually to contain representations of their respective species; insomuch that several of the descriptions here given of Thamnophilinæ, are equally applicable to the prototype species among the Myotherinæ. So completely, indeed, have ornithologists been deceived by these extraordinary relations, that even the accurate Azara, under the belief that the Myotherinæ of Sonnini were no other than so many Batara Shrikes, broadly accuses that veracious ornithologist with cutting off the tails of his specimens, and falsifying the account of their natural economy! The whole passage is particularly curious, and is, perhaps, one

Page

of the most striking instances that can be adduced, to illustrate what is at present termed the direct *analogy* which the typical groups of families bear to each other. In short, nothing but a complete revision and re-examination of all these birds, will enable us to distribute them in their natural groups; and even then, where the former descriptions are merely confined to colour, their correct application in very many cases, will be altogether impracticable. The theory of Mr. Vigors, that the Thamnophilinæ constitute that aberrant group, which forms the immediate passage to the Thrushes, may appear to be strengthened by the foregoing observations; nor are we at all surprised that a cursory view of the subject should have led to such a conclusion.

284. The *Drymophila Velata* of Temminck has no affinity with our genus. It belongs to a group peculiar to the Australian range.

285. Subgenus *Cyclaris*, Nob. The bill of *Tanagria Guianensis*, the only bird we are as yet acquainted with of this type, is broad and short, not slender.

387. *Lanius Leucocephalus* more properly belongs to *Vanga*.

290. Genus *Psaris*. No naturalist of the present day has evinced a more honourable and more scrupulous regard to the names, imposed by his predecessors to generic groups, than has M. Cuvier; and perhaps there is no one who has been more exposed to the plagiarisms of inferior writers. We have, elsewhere,* considered it our duty to expose a bold, but, we hope, an unsuccessful attempt, to obliterate nearly the entire ornithological nomenclature of the Règne Animal. And, as if the change of *Tytira* for *Psaris* was insufficient, we find both these are to give way to *Pachyrhynchus*. Had M. Spix restricted this name (as we at first conjectured had been done) to the group of which our *Psaris Cuvierii* forms the type, nothing could have been better; yet, by applying this new designation to the two groups indiscriminately, it is plain that no intention of indicating their

* Zoological Illustrations, Vol. I, pl. 41.

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respective distinctions was thought of: the only object appears therefore to have been the substitution of *Pachyrhynchus* for *Psaris*.

The *Lanius Inquisitor*. Olfers. This description is insufficient to identify the species intended. It is, indeed, applicable to *Psaris Jardinii*, but is equally so to another, totally distinct, in our museum. We suspect there is also a third, which perfectly agrees with this description of *L. Inquisitor*.

Tityra Viridis. Vieill. *Psaris*, Cuvierii. These birds may, perhaps, be the same. The former name being changed by M. Vieillot, near two years after we published the species. M. Spix has very properly retained the *specific*, but altered the *generic* designation.

Having personally examined nearly the whole of the species here mentioned, we shall arrange them in their respective affinities, and in accordance with the views already detailed in the Zoological Illustrations. (N. S. pl. 41.)

PSARIS. *Cuv.*

1. Cayanus. Cuv. 2. Jardinii. New Zool. Ill. pl. 35. 3. Inquisitor. Olfers. 4. Semifasciatus Pachyrhynchus. (Tityra Personata. Jardene and Selby, pl. 24.) 5. Erythrogenys. Selby. 6. Cristatus. Zool. Ill. pl. 41.

PACHYRHYNCHUS, *Nobis*. *New Zool. Ill. pl.* 41.

1. Cuvierii. Zool. Ill. 1. pl. 32. 2. Niger. 3. Cenerascens. 4. Rufescens. 5. Validus? 6. Niger.

296. *Trichophorus*. The hairs, which are so peculiarly developed in the genus Trichophorus, are dispersed among the feathers of the nape; they are very slender, and setaceous; from their elasticity they may, with propriety, be called bristles.

307. *Tanagra Rudis*. Lath. first described by Sparman, is the female of Tanagra Brazilia, of Linn., first detected by us in 1813. It inhabits Brazil, not Coromandel.

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312. *Tachyphonus Rubescens.* Sw. We have long ago proposed to remove this from the genus *Tachyphonus.* (See Zool. Journal, No. 10.)

314. *Golden-crested Tanager.* This we believe to be the species already described on the last page, as Tachyphonus Suchii. Sw.

318. *G. Tyrannus.* Nearly all the tyrant Flycatchers, and certainly the most powerful species, being natives of Brazil, we had an opportunity of ascertaining their habits from personal observation. We are unacquainted with any species that prey either upon small birds, or carcasses. The *Tyrannus Sulphuratus,* in its general size, and particularly in the strength of its bill, exceeds all others yet known. Its principal food is insects, but we have more than once witnessed this bird dart upon small lizards, which are swallowed whole.

Regarding the numerous species here arranged among the Tyrants, it may be observed, on reference to our monograph of this group,* that several species are clothed nearly in the same colours; and that their chief specific distinctions rest on the different formation of their wings. Now as these characters have been entirely overlooked by all the authors here cited, it becomes next to an impossibility to discover the species intended to be described. We have elsewhere considered the Lanius Vengata, as the type of a sub-genus. (Zool. Journal, No. 10, Sept. 1827.)

331. Our *Muscicapa Labrosa* we cannot discover to have the affinity here stated. To our apprehension it belongs to the Ceblepyrinæ.

332. We have endeavoured (Zool. Journal, No. 11) to point out the distinctions which separate the whole of the American Flycatchers from those of Europe, Africa, and the Asiatic range, and to this group, so distinguished, the sub-generic name of *Tyrannula* has been applied. The *Muscicapa Barbata,* and

* Brand's Journal, No. 40, January, 1826. See also Zool. Journal, No. 10, p. 165, 166.

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Coronata, are among the typical examples quoted to illustrate this very natural group.

338. *Platyrhynchus Coronatus.* This is the Muscicapa Coronata of p. 332. The reference to the Ency. Meth. p. 192. 2. is correct, but the figure in the Pl. Enl. 453, f. 1. represents a bird belonging to a different genus.

345. *Muscicapa Hirundinea.* Rein. (Obscura. Horsf.) belongs to the Thamnophilinæ.

347. We have seen no example of the genus Muscicapa, *as restricted by M. Cuvier*, from New Holland.

350. *Muscicapa Saya.* Bonap.

Is, we believe, the same as the *Tyrannula Pallida* of the last page; the first specific name, on the score of priority, will supersede the other.

351. Our *Setophaga Ruticilla* is the same as the Muscicapa Ruticilla of preceding authors. This we have distinctly expressed, both in the paper which first notifies this new group, (Phil. Mag. June 1827, p. 367,) and in that which details its characters. (Zool. Journ. No. 11, p. 360.)

The description, here purporting to be that of our Setophaga Ruticilla, is that of our *S. Miniata.* Ph. Mag. l. c. p. 367. A better acquaintance with this group induces us to consider it as a very conspicuous *genus*, whose true affinities are to be found among the Flycatching Warblers, in the family of Sylviadæ.

354. *Muscicapa Stenura.*

This bird is mentioned (Zool. Journ. No. 10, p. 359) as the type of the Culicivoræ. In all aberrant groups it becomes extremely difficult to detect the typical form from among those which pass into the conterminous groups, on the right and on the left; and those, also, which constitute the passage into an adjoining circle of higher value. As we shall have, elsewhere, occasion to enlarge upon this peculiarity in natural arrangement, it may be sufficient to state our doubts, whether the bird in

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question, or the *Sylvia Cærulea* (Mus. Cærulea of Wilson, 2. pl. 18. f. 5.), is the true typical form of the *genus* Culicivora.

Chattering Flycatcher. It has, we believe, been customary with most systematists to consider the Ampelis Lutea of Sparman (Mus. Carls.) as specifically the same with the Pipra Polyglotta of Wilson, admirably figured in the Am. Ornithology. There is, indeed, a considerable resemblance between the figures of the two birds; yet there are so many minute differences, even in the colours of their plumage, that we are disposed to consider they represent distinct species.

356. *Muscicapa Longipes.* Lesson. This highly singular bird appears to hold a situation close to the European Robin, among the Sylviadæ.

Muscicapa Stellata. Naturally allied to the European Robin.

358. The Cotingas, so far as personal observations enable us to judge, are solitary birds, seldom or never seen but in pairs, and never pursuing insects on the wing.

The name of *Campephaga,* applied to this group for no other purpose but to obliterate that of *Ceblephyris,* previously imposed by Cuvier, deserves to be erased from our systems. Much praise is due to M. Temminck for rejecting this proposed change.

366. The *Procnias Cucullata.* Nob. appears, from specimens in the Paris Museum, to be the same species as that described by Prince Maximilian.

373. It would have been better had some notice been taken of the genus *Irena.* Before seeing the bird, and upon the faith of descriptions, we formerly expressed a belief that it bore much affinity to the Edolianæ; but specimens have since come into our possession, and we wish to retract this opinion altogether.

385. *Thamnophilinæ* and the Mocking Bird is the type of the genus Orpheus, a group we characterized in a paper sent to the Zoological Journal, in 1826, but which, for some unexplained reason, was withheld from the public until near twelve months after.

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388. Much confusion will arise by adopting the definition that has been given to the names of *Turdoides* and *Ixos*, under a belief that they characterize natural groups. As for the names, they must both yield in priority to *Brachypus;* the characters of which, published in 1824, will comprehend a considerable portion of these short-legged thrushes. Of the remaining birds, called by methodists *Turdoides*, some, unquestionably, belong to the Ceblephyri, and others to different sub-families of the Meruladæ.

392. M. Temminck's generic name of *astor* must supersede that of Psaroides.

398. *Sericulus Chrysocephalus.* Nob. A minute examination of a very fine and perfect specimen of *Paradisea Aurea*, in the Paris Museum, has fully confirmed the suspicion we formerly expressed on the affinity which this magnificent bird bears to *Sericulus*. Both, in fact, are true Orioles: although not strictly belonging to the same type. In regard to the *Mimeta* of Mr. Vigors, we cannot discover in what respect its structure, *in the slightest degree*,* differs from that of the common Orioles. The European Oriole we have frequently shot, and dissected. Ornithologists are greatly indebted to Sir W. Jardine, Bart., and Mr. Selby, for their most valuable illustration of the tongue of *Mimeta Virides*, which, at the same time, is a perfect representation of that member in Oriolus Galbula. The speculative theory of Mimeta being a truly melifagous bird thus falls to the ground.

402. *Pitta Pileata.* The bird named and represented on the Pl. Col. tab. 76, is *Pitta Thoracica*, a species, indeed, which appears closely allied to the *Timalia Pileata* of Dr. Horsfield, in

* The only external difference between the European and several African and Indian Orioles, now before us, is in the comparative length of the second quill feather. In Oreolus Galbula, this quill is longer than the fifth in all the others; and in *Mimeta*, it is either shorter or of equal length. The superior extent of geographic range, enjoyed by the *Oriolus Galbula*, above all its known congenors, at once explains why its organs of flight are so much developed.

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natural affinity, but probably very distinct from that bird, even in its generic situation.

The bird here described as *Timalia Thoracica*, Horsf., is the *Timalia Pileata* of that naturalist; the reference to the Pl. Col., as belonging to the Pitta Thoracica, may be cancelled.

403. The generic name of *Grallaria*, judiciously given to the Corvus Grallarius by M.Vieillot, appears perfectly unobjectionable, and renders the subsequent alteration of M. Boie unnecessary. *Myrmothera*, as M. Temminck observes, is but a plagiarism of Illiger's original designation *Myiothera;* but the whole of this group requires a thorough revision.

432. *Sylvia Hirundincea* is a true Diceum of M. Cuvier.

Pipra Longicauda, and *Militaris*, do not belong to the Pardaloti.

433. G. PACHYCEPHALA. A recent investigation of the affinities of this group, has almost demonstrated the correctness of the view here taken of its natural situation.

437. *Sylvia Pileata.* This and the Fourmilliers of Le Vaill, Ois d'Africa, exhibit the typical structure of Campicola. At the time we characterized this group we conceived it might prove a genus; but a more accurate analysis of this sub-family proves it to be a sub-genus or type of form, subordinate to Saxicola.

438. *Saxicola Superciliaris*, as one of the types of genuine thrushes, may be removed from this family.

439. *Saxicola Jardinii.* Vigors. From information recently communicated to us by our friend, Sir William Jardine, Bart., it appears this bird possesess all the leading characteristics of our genus *Petroica.* Another species has been placed by Mr. Vigors among the genuine Fly-catchers.

442. *Sylvia Galactotes.* The characters of this highly interesting bird accord more with opetiorphynchos than with any other. It

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represents, in all probability, that Transatlantic group on the European continent.

448. *Jora Scapularis.* Horsf. Closely allied in natural affinity with the short-legged thrushes placed by us in the genus Brachypus, which birds we suspect are typical of one of the primary divisions of the Meruladæ. The bird figured in the Zoological Researches, appears to be the female of the Quadricolor of Le Vaill. Ois d'Af. (plate 141), where both sexes are represented. It is impossible to say what the Green Indian Warbler (the species immediately preceding this) really is, and the references are inaccurate. Under the name, however, of the Green Indian Flycatcher, Edwards (plate 79) describes and represents a bird whose colours at least much resemble those of the female "Quadricolor." *Sylvia* (or rather Sylvicola) *Petechia* of Wilson, is very distinct from the M. Æstiva of authors.

464. *Sylvia Plumbea.* Has the perfect typical characters of our genus Sylvicola. We presume the name has been changed by M. Temminck to *Venusta*, from the circumstance of Dr. Latham having previously described another bird as Sylvia Plumbea; but as ours is now removed, not only from the genus, but even from the sub-family of Sylvianæ, there can be no longer any necessity for adopting the proposed alteration.

Mniotilta. Vieill. When characterizing the Certhia Maculata (Motacial Varia of Lin.), as a sub-genus, under the name of *Oxyglossus* (Zool. Journ. No. 11, p. 357), we were not aware that this had already been done by M. Vieillot, who cites this bird as the type of his genus Mniotilta. More mature consideration induces us to consider this group as a type of form belonging to the genus Sylvicola. With respect to the birds referred by us to *Vermivora*, they are totally distinct from that cited by M. Cuvier, as the type of his genus *Dacnis*. *Vermivora* also appears to be a sub-genus to *Sylvicola;* while *Dacnis* seems to hold the same rank among the suctorial creepers.

469. *Malurus Hirundinaceus,* is a true *Diceum* of M. Cuvier.

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473. *Le Plaistron Noir.* A typical example of the genus *Drymoica*, Nob.

491. *Blue-headed Tanager.* The figure and description of this bird agrees with the T. Braziliensis of authors in every respect but one. The whole of the head in this appears to be blue; in the other, there is a black stripe on the hinder part.

510. During our residence in Italy, we found it impossible to ascertain what was the real Becafico of the Italians. This name, in fact, is applied promiscuously to all those small birds of the warbler family, which, during the summer, feed upon the ripe figs.

VOL. VII. p. 59.—*Cypselus Mystaceus.* Through the kindness of our friend, M. Lesson, we examined the only specimen of this bird in Europe. It may be considered the type of our genus *Macropteryx.* (Zool. Ill., 2d Series, pl. 47.)

62. *Hirundo Fulva.* The observations that our *Melanogaster* seems closely allied to this bird is perfectly correct; we believe, in short, that they are the same. When we wrote our description, the beautiful work of Prince Charles Buonaparte had not reached England; and we considered M. Vieillot's account as too vague for application.

70. *Cypselus Giganteus.* We suspected, when describing our Chætura Macroptera, which is this bird, that it had already been named. The specific appellation of *Giganteus*, although equally applicable to the next species, (*Ch. Albicollis*), which, in fact, is rather larger, must be preferred to *Macroptera.* The group is too distinct to remain under the genus in which it has been placed by M. Temminck.

127. The *Commanding Bunting, Emberyza Cristata,* Zool. Ill. 3, pl. 148. We believe this species appeared in the Zool. Illustrations, prior to its publication, in the works of MM. Temminck and Vieillot. The artists who have designed these latter figures, have contributed to give a most erroneous idea of the structure of

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the bill, and the consequent affinities of the bird. By representing the culmen as perfectly straight, this member is made to assume the true form which belongs to *Emberyza*, to which at best the whole construction of the bird bears but a remote resemblance. By consulting the figure and description in our Illustrations, it will be perceived that the culmen of the bill is considerably arched; and its construction, upon the whole, much more in unison with that of *Ploceus*, than with any other group. To us, this bird exhibits an osculent form, whose natural situation is even doubtful.

The *Emberizoides* of the Pl. Col. were long ago characterized by us as a subgenus under the name of *Tardivola*. Observations on these birds, made in their native regions, tend to point out their natural affinities to be among the Tanagers.

143. *Fringilla Tristis*, Auct. Is a typical Carduelis.

148. *Emberiza Oryzivora*, placed by us as the type of a group named *Dolichonyx*, for reasons stated at length in the Zool. Jour. No. 11, p. 351. We are not yet, however, prepared to offer any opinion on its generic or subgeneric rank.

167. *Icterus*, Cuv. It is scarcely possible to create greater confusion than that which has been introduced in the nomenclature of this family; but the attempt that has been made by M. Vieillot to obliterate the prior designations given in the Règne Animal, and this moreover has been done with so little consideration of the birds in question, that the adult is not unfrequently placed in one of these genera, while the young bird is to be found in another. A total omission of such names and such characters would tend much to keep the ideas of the student from being more perplexed than is absolutely necessary. We must however remark, that the genus *Agelaius*, if restricted to such birds only as exhibit the peculiarities of *A. Phœnicius*, is typical of a truly natural division, into which enters the Emberyza Oryzivora of authors.

172. *Genus Dacnis*, Cuv. The species, separated by Wilson, and defined by us as constituting the subgenus *Vermivora*, in the

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genus *Sylvicola*, are those only which have been described and figured in the American Ornithology.

351. *Le Galapiot.* We omitted to cite this as the type of our subgenus, *Dendroplex.* (Zool. Journ. 10, p. 354.)

354. *Merops Rufus.* The food and habits of this bird, and of all its true congenors, place them with the *Saxicolinæ.* They live only upon the ground, from which they extract insects from beneath the surface.

355. *The Black and Yellow Creeper.* We have, from personal observation distinctly stated this bird to be truly mellifagous; and belonging to the *Tenuirostres* of M. Cuvier. Upon what grounds, therefore, it is placed by the continuator of Shaw's Zoology (in which work our original figure is copied) in the genus *Furnarius*, we cannot comprehend. The one is never seen upon the ground, the others are never seen upon trees.

384. *Epimachus Superba.* A recent inspection of this magnificent bird enables us to state that its generic characters are totally different from those of *Ptiloris.* The two genera do not, in all probability, belong to the same family.

412. *Dacelo Cinnamoninus*, Swain. Ill. p. 67. This name is not ours. The plate referred to represents *Halcyon Cinnamominus.* Notwithstanding the doubts expressed in our description, that it might be advisable to consider Halcyon and Dacelo as one genus, subsequent consideration induced us long ago to keep these groups distinct, an arrangement which has been adopted by subsequent writers. It is also a mistake to suppose that our *Halcyon Cinnamoninus* belongs to the division "from which Dr. Leach formed his genus Dacelo," the Doctor having applied this name solely to the Great Brown Kingfisher, which is typical of that group which immediately follows the above cited paragraph (see Leach Zool. Mis. 2 tab. 106). The genus *Halcyon* was first proposed in 1820, and a perusal of its definition, (Zool. Ill. 1st Series, vol. I. pl. 27) will satisfy the reader that it is *especially* formed to include those Linnæan

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Kingfishers, mentioned at p. 410, as having "the lower mandible swelled out." We may here observe that the genus *Tonysiptera*, proposed on the assumption that the structure of its feet, *when known*, will be found sufficiently distinct from those of *Halcyon*, rests, to say the least, upon a very slender foundation. Neither can we adopt the artificial genus *Ceyx*, composed as it confessedly is of true Kingfishers and *Martin Chasseurs*.

The primary distinction in the external structure of *Halcyon* and *Dacelo* rests in the form of the upper mandible of the bill. In the first the culmen is perfectly straight, without any emargination near the end; in the latter, the culmen is bent towards its extremity; and this bend corresponds to a long sinuosity at the edge of the margin, which appears, at first sight, as if a lanceolate slip of the bill had been broken off.

END OF VOL. VIII.

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